

DEPARTMENT OF HEALTH

OF THE

CITY OF NEW YORK

No. 7

MONOGRAPH SERIES

SEPTEMBER, 1912

COMMENTS  
ON  
SOME PLANS  
OF  
HOSPITAL CONSTRUCTION

BY

HERMANN M. BIGGS, M.D.

GENERAL MEDICAL OFFICER



*Public health is purchasable. Within natural limitations  
a community can determine its own death rate.*

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Bridges report  
from ...  
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OF THE  
CITY OF NEW YORK

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ERNST J. LEDERLE, Ph.D.  
Commissioner of Health

HERMANN M. BIGGS, M.D.  
General Medical Officer

WALTER BENSEL, M.D.  
Sanitary Superintendent

EUGENE W. SCHEFFER  
Secretary

DEPARTMENT OF HEALTH  
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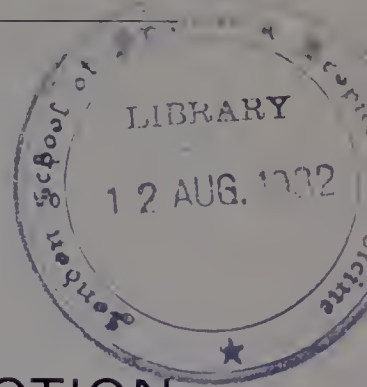
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# LETTERS OF TRANSMITTAL

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OFFICE OF THE GENERAL MEDICAL OFFICER

Sept. 9, 1912.

*To the Commissioner of Health :*

SIR: I have the honor to submit herewith a paper on "Some Plans of Hospital Construction," and to request that the same be published in circular form for general distribution.

Respectfully,

HERMANN M. BIGGS, M.D.,  
*General Medical Officer.*

Approved for publication.

ERNST J. LEDERLE, PH.D.,  
*Commissioner of Health.*

*Sept. 10, 1912.*



## **PREFACE**

Believing that a brief illustrated description of the various types of buildings used in its work might be of interest and value to hygienists, the Department of Health has prepared this booklet as part of its contribution to the XV International Congress on Hygiene and Demography.





## INTRODUCTION

During the last few years those responsible for hospital construction for the Department of Health have been influenced more and more strongly by three considerations:

**First.**—The value of open-air treatment in practically all forms of infectious disease, as well as tuberculosis.

**Second.**—The desirability of erecting pavilions which could be used interchangeably for any of these diseases, including tuberculosis.

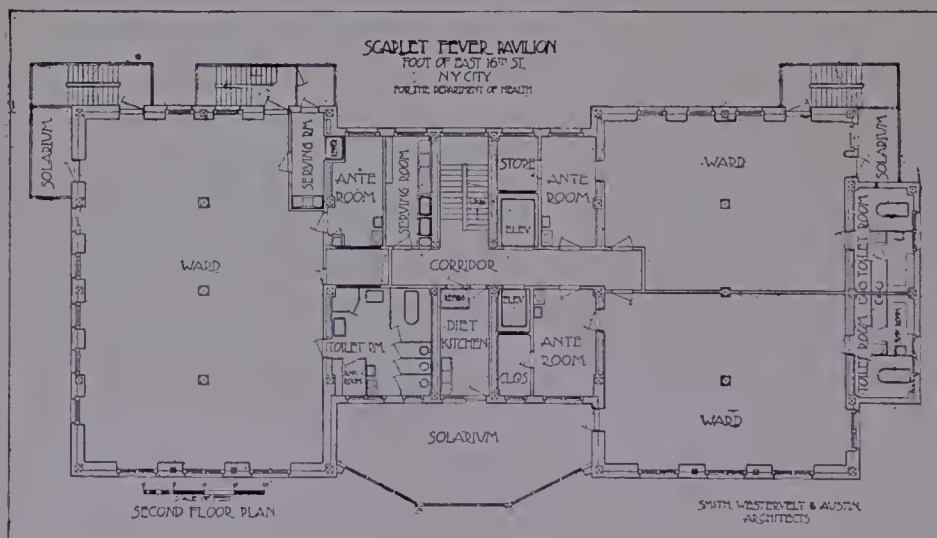
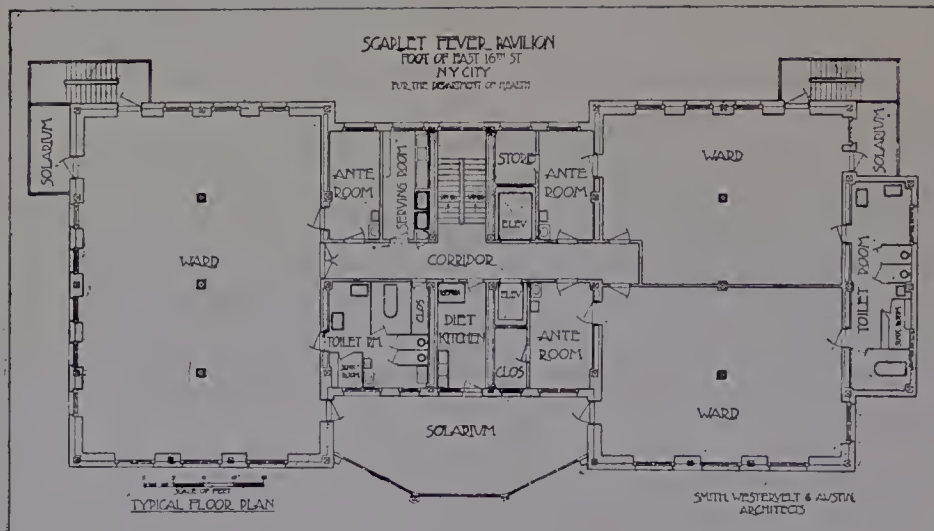
**Third.**—The importance of erecting hospitals which should be as simple and inexpensive as possible, both as regards the original cost and the subsequent maintenance.

The influence of these considerations has been gradually developed and progressive during the last ten years, and may be easily discerned in the design of hospital construction adopted.

In the city, and wherever the fire risk has to be carefully considered, the Department has come to adopt reinforced concrete, or hollow tile and concrete as probably the best material for construction. Where the fire risk need not be considered, as in building small one-story pavilions in the country, wood construction has certain advantages.

The buildings used by the Department of Health may conveniently be considered under the following arrangement:

- I—Isolation buildings for the care of contagious diseases and advanced cases of tuberculosis. Pavilions to be used interchangeably for the contagious diseases and advanced tuberculosis.
- II—Pavilions for the sanatorium care of tuberculosis.
- III—Administration Buildings, including Dining Halls, Kitchens, Dormitories, Laundries, etc.



## SECTION I

### ISOLATION BUILDINGS FOR THE CARE OF CONTAGIOUS DISEASES, AND PAVILIONS TO BE USED INTERCHANGEABLY FOR THE CONTAGIOUS DISEASES AND ADVANCED TUBERCULOSIS.

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#### SCARLET FEVER BUILDING (WILLARD PARKER HOSPITAL)

The Scarlet Fever Hospital at the foot of East 16th Street is a seven-story brick and stone fireproof building, containing wards on the first six and a solarium on the seventh floors. This building is heated throughout by an automatic steam heating and ventilating system, supplemented by direct heating and ventilation.

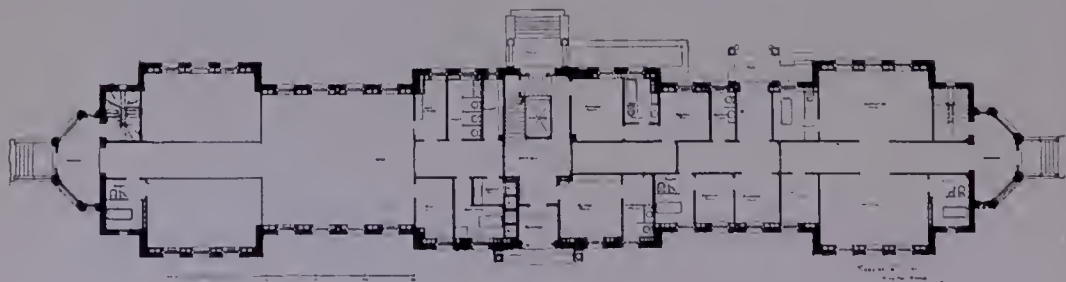
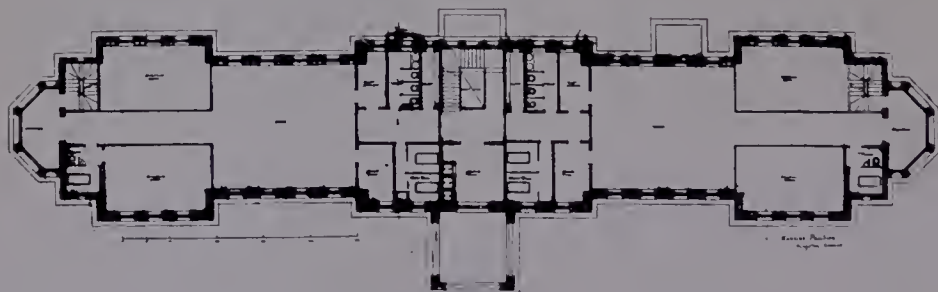
The first and second floors, west one-third of the building, are separated from the rest of the building and were intended for the care of cases of scarlet fever complicated with diphtheria. This portion of the building is provided with the proper admission and discharging rooms, and is in fact a small isolation hospital in itself. The east, two-thirds of the first floor is given over to the admission of patients, admission of visitors, the robing room of nurses and attendants, and the visiting physicians' waiting room.

All the floors above the first up to the sixth contain two small wards in the easterly and one large ward in the westerly end of the building. On several floors, the same bath rooms serve the two east wards. This is undesirable as it prevents the possibility of isolating patients in one ward. The bath room of the large ward is in the center of the building which is a disadvantage as it is necessary to use artificial light much of the time. Off the large ward there is a treatment and dressing room. The sixth floor was intended for the care of patients requiring single rooms—physicians, nurses, etc. It also contains an amphitheatre for teaching purposes and a laboratory for microscopical and chemical examinations.

The greatest disadvantages of the buildings are the large size of the wards and the impossibility of completely isolating patients in one ward. The latter defect will be largely overcome by building outside elevators, giving each ward on the northeast side of the building an entrance and exit independent of the main hallway.

### MEASLES PAVILION (KINGSTON AVENUE HOSPITAL)

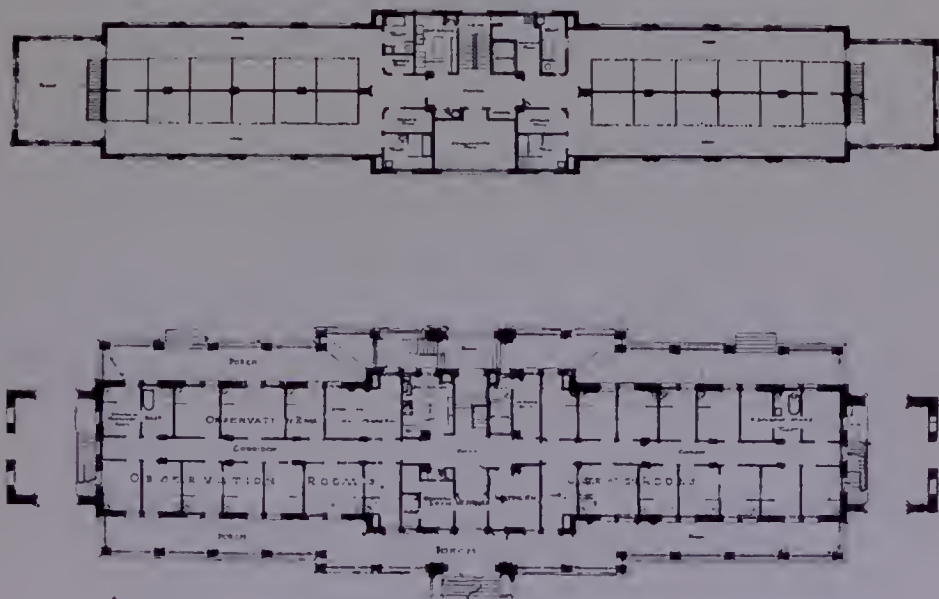
A four-story brick and sandstone building. The central portion of this building is devoted to administration purposes and contains on all floors a kitchen, a nurse's room, a linen room, bath rooms and lavatories. The north half of the first floor is devoted to admission, discharge and isolation rooms. There is a central corridor passing through this part of the building and off of it in the extreme north end there are six rooms with glass partitions. These rooms have doors entering into the central corridor but no outside doors. They are designed for the separation of patients into smaller groups. There is only one service room. This arrangement, while followed on the Continent, is regarded as a defect and has been avoided in subsequent buildings. The south half of the first floor has a ward in which there are two large glass compartments for separation of groups of patients; one of these is provided with a service room separate from the main ward, while the other has no independent service. Both of these rooms open directly into the main ward. The wards on the second floor are identical with that at the south end of the first floor. On the third floor the wards are divided in the center by a glass partition running directly across the ward. On the top floor there is a solarium and operating room. The service rooms of the solarium are small and do not adequately supply the needs of the floor.



**MEASLES BUILDING (WILLARD PARKER HOSPITAL)**

A seven-story reinforced concrete building designed to afford the maximum amount of fresh air and sunlight. The central portion of the building is devoted to administration purposes, while the north and south wings are used for ward purposes. At either end there is a large solarium containing a fire escape which is ample for the ward which it serves. All floors above the first are practically the same. Each ward has a capacity for twelve patients and there are four wards to the floor. The central partition between the wards is solid for a height of about five feet above which there are pivoted windows so that in the event of a mixed infection in the ward they may be closed, completely isolating that ward from all others. When there is an uncomplicated service, these windows may be left open, insuring perfect cross ventilation. The wards are divided into compartments by glass stalls, thus to a certain extent affording isolation of individual cases. In the administration area there are bath rooms, treatment room, nurse's room, kitchen and convalescence or quiet room, as the case may demand. On the first floor there is a central corridor that runs the entire length of the building and opening off of it in the wings are 22 rooms, for the observation of patients, which have a separate entrance on the outside of the building. The administration area contains a gowning and waiting room, a nurse's room and a diet kitchen. At the extreme end of each wing there is an admission and discharge room.

This building has been designed with the hope of solving the problem of treating measles in open air wards in a high building. (In process of erection.)





**ISOLATION PAVILION (KINGSTON AVENUE HOSPITAL)**

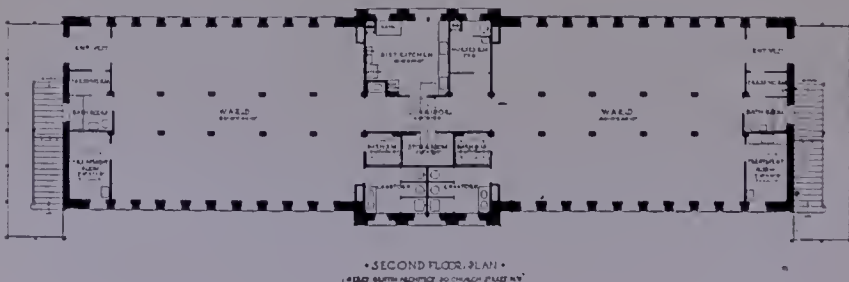
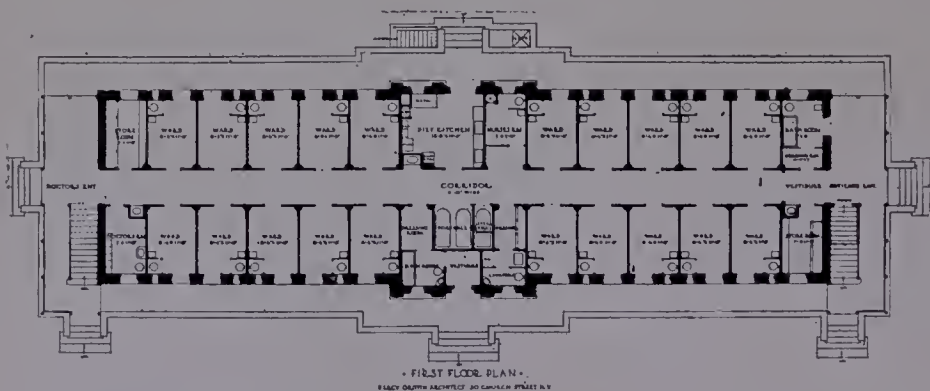
A two (2) story brick and sandstone building to be used for the isolation of infectious diseases of various kinds being held for diagnosis and transfer.

There is a central corridor that runs the entire length of the building, and on the outside the building is surrounded by a porch five (5) feet wide. The central portion of the building is devoted to administration. The service rooms in this administration area are kitchen, nurses' room, dressing room, a bath room and lavatories.

Each ward has a door and window opening on to the porch and a door opening into the central corridor. On the north end of the pavilion there is an admission room and store room, and on the south end of the pavilion there is a doctors' room and opposite it a store room. Each ward is supplied with a toilet, slop sink and discharge trap for portable bath tubs. Off the corridor, in the administration area, there is a room to hold the portable bath tubs and a sterilizing chamber for the same.

The partitions of the corridor and wards are made with the upper two-thirds of glass. This arrangement allows the nurse and attendants to have a full view of all wards in one end of the building at the same time.

The upper floor has in the center an administrative area containing a kitchen, nurses' room, store room, bath room and lavatories, while at either end of the large ward there is an admission and discharge room containing a bath, together with a treatment or quiet room. By this arrangement each of these rooms can be used for isolation purposes if necessary.

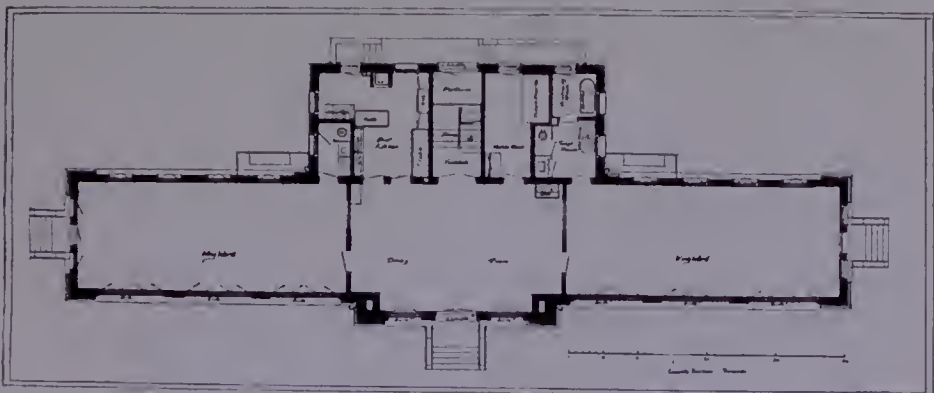
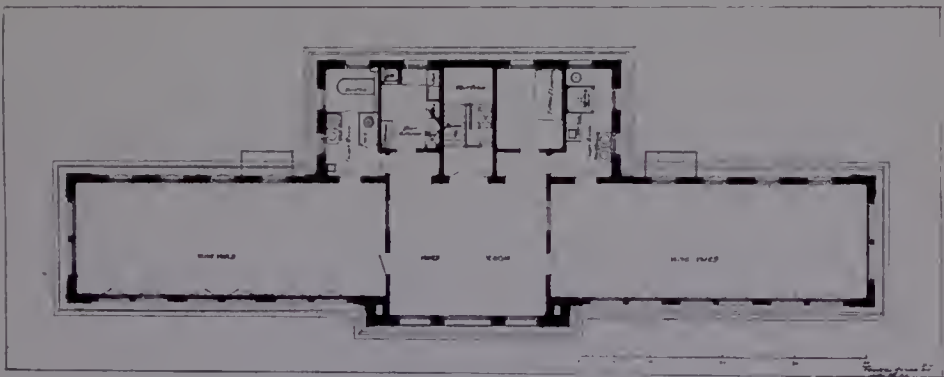


## TUBERCULOSIS PAVILION (RIVERSIDE HOSPITAL)

### (Interchangeable Type)

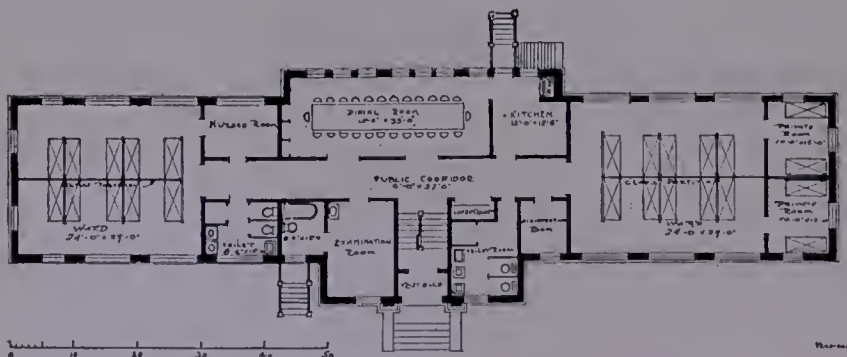
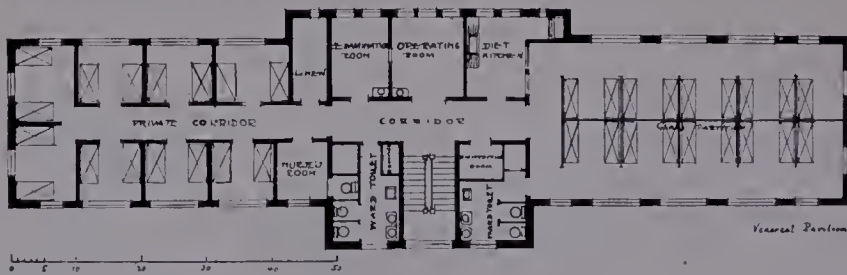
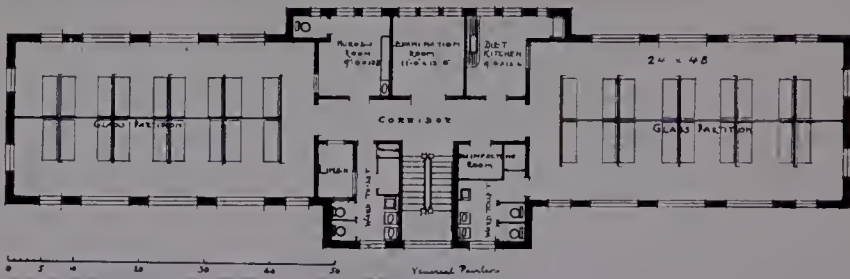
A four-story reinforced concrete building. The central portion of the building is devoted to administration. The wards are in the wings. The beds in these wards are separated by glass stall partitions. The windows are so arranged that when open the ward is practically an open air pavilion. In the administration area there is a sitting room, a kitchen, a nurses' room, bath rooms and lavatories. In the administration area on the first floor there is in addition to the bath rooms and lavatories an admission room.

A revised type of construction has been used in two pavilions now building in which more space is devoted to administration and to better light and ventilation on the fourth floor.



### VENEREAL BUILDING (RIVERSIDE HOSPITAL)

A three-story reinforced concrete building designed for the open air treatment. The central portion of the building on all floors represents the administration area, while the wings represent the wards. The administration area on the first floor contains an admission room, examination room, a disinfection room for ward utensils, a nurses' room, a kitchen, a dining room, bath rooms and lavatories. The ward in the north wing is similar in arrangement to those on the third floor. The ward in the south wing contains two (2) small rooms for the isolation of observation and advanced cases. The arrangement of the rest of the ward is the same as those on the third floor. The administration area on the second floor contains a diet kitchen, an operating room, an examination room, a linen room, a nurses' room, a disinfection room for ward utensils, bath rooms and lavatories. In the north wing there are eight (8) small rooms for the care of advanced and operative cases. In the south wing the arrangement of the wards is identical with that of the third floor. The administration area on the third floor contains a kitchen, a reception room, a nurses' room, a linen room and closets, bath rooms and lavatories, a disinfection room for ward utensils. The beds in the wards are separated by glass partitions.





## SECTION II

### PAVILIONS FOR THE SANATORIUM CARE OF TUBERCULOSIS

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#### GENERAL CONSIDERATIONS

**Location:** The Municipal Sanatorium for Tuberculosis is situated at an altitude of from 1,100 to 1,200 feet, in the Shawangunk Mountains, 76 miles from New York and one mile from the village of Otisville. It is beautifully located on the southeasterly side of a high hill, which protects it from high winds, and allows a maximum of sunshine. It has a magnificent view covering about fifty miles of rolling country terminating to the southward in a range of high hills which show blue in the distance on clear days.

The buildings face a little east of south and as a result of their construction receive sunlight during the entire day.

**Lighting:** Light is furnished by electricity, which is developed by a plant installed on the ground.

**Water:** An artificial lake of forty acres, with a water-shed absolutely free from contamination, situated on the top of the hill, furnishes a part of the water now used. A contract is soon to be let for dredging the lake and tunneling through the high part of the hill so that in the future all water will be delivered directly from its source by gravity. After dredging, the depth of this body of water will be such that its temperature will conform to that of the soil rather than that of the atmosphere. A part of the supply is furnished by springs, which yield a two-inch continuous stream during all but the dry seasons. This will be used later as an accessory supply. Water is pumped at present from the lake and springs to reservoirs, from whence it is carried by gravity to the points of distribution. An artesian well is also used during the dry season.

**Sewage:** Is taken from its source by a network of lines at both units, converging to form a large main line which conducts it to its point of disposition in the valley, about one-half mile from the institution.

**Fire Prevention:** All buildings are equipped with fire extinguishers, axes and hooks. Hydrants are placed at various points about the grounds. A modern fire alarm system has been installed. Weekly fire drills are held.

**The Buildings:** When it was planned to establish a free municipal tuberculous sanatorium at Otisville, there were practically no

data as to what type of construction would best fulfill all the requirements. It was felt that to build and conduct sanatoriums of sufficient size for the needs of New York City along the lines followed in other public institutions maintained by the city or in private sanatoria, would be impracticable because of the cost, and that the construction and maintenance of such institutions must be far less expensive. Furthermore, it was believed that great care should be exercised not to unfit patients coming from the working classes for taking up their lives again after their discharge. It was not known at that time just how much exposure to the weather such patients coming from the warm, stifling atmosphere of the city tenements could bear. Accordingly, in the development of the Otisville Sanatorium, the first buildings erected were largely in the nature of an experiment. These were portable houses containing a closed dressing room in the middle, a partially open sleeping room on either side and an open porch next to the sleeping rooms. After using these portable houses for but a short time, it was found that even in cold weather the patients preferred to sleep on the open porch, and the first permanent buildings erected, therefore, provided only open porches for sleeping purposes. These buildings were of the "King Lean-to" type (page 20). It will be seen that back of the living room is a dressing room containing wash basins with hot and cold water, showers and toilets. The living and dressing rooms were heated. Experience soon showed that during cold weather the patients, unless watched, frequently lounged in the warm dressing room and to insure their continuous life in the open air orders were issued that the windows and doors of the living and dressing rooms should be kept wide open throughout the day from 9 A. M. to 5 P. M. With the intensely cold weather prevailing at Otisville in winter, this regulation resulted in the constant freezing of the water pipes, and this led to the abandonment of plumbing fixtures in most of the subsequent buildings at the Male Unit, the patients being supplied with portable wash-stands and basins instead of with running water. Bath accommodations were provided in two centrally located buildings, and toilets were installed in one of each group of three or four shacks.

Experiments were also made with large and small pavilions constructed of various materials and of different types and the advantages and disadvantages of various types were thus clearly brought out.

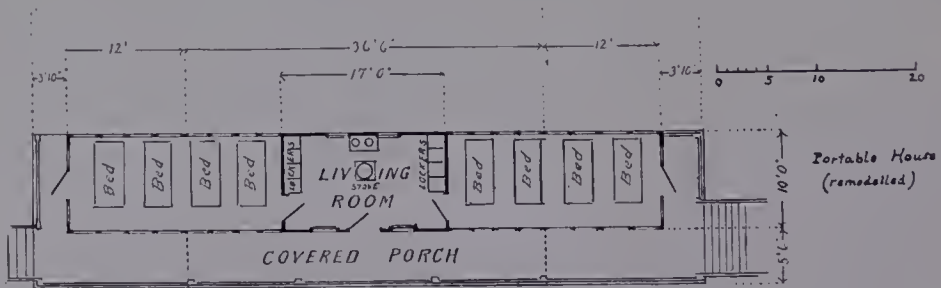
When it came to constructing pavilions for the accommodation of women, it was realized that quite different requirements would have to be met, and these buildings have accordingly been designed along somewhat different lines. They all have plumbing with hot and cold water, and each pavilion at the Women's Unit is supplied with bath and toilets. Moreover, in many of the shacks for women the large common dressing rooms, such as are used at the Men's Unit, have been replaced with individual cubicles. Partly owing to the topography of the Women's Unit (a rather steep hill) and also for economy in construction and administration, it has been found advantageous to build two-story structures.

At first glance, a number of factors introduced into the structures at Otisville might not appear to be economical. Among these may be mentioned, for example, the provision of separate heating plants in each shack in the place of a large central heating plant. This is really more economical, both in construction and administration, as the shacks are so widely separated, and furthermore it must be remembered that the Otisville Sanatorium is conducted almost entirely by patient labor, and that while patients are able to care for stoves, furnaces and even small steam heating plants, skilled labor would be required to operate a central heating plant and this would more than offset the saving affected by centralization.

So far as the materials of construction are concerned, it was natural that the earlier types of buildings should be of wood. These were less expensive, more adaptable, and more easily and rapidly constructed. Recently, since it has been felt that the type of construction adapted for the purpose has been fairly well established, the Department has begun the building of pavilions of hollow tile and concrete. This type of structure has some advantages, especially in large buildings—it is more durable and while somewhat more expensive originally, is probably more economical to maintain. It is less adaptable for the construction of shacks.

## PORTABLE HOUSES

This was the first type of building used at Otisville. Owing to the necessity of providing immediate accommodations for a small number of patients, it was found best to erect structures of this type as they were to be procured immediately. The frame is of wood, lined inside with paper. These houses have withstood very severe wear for six years and are still in use; they make comfortable quarters for patients. At first, each house contained two sleeping rooms, one on either side of a central dressing room, and next to each sleeping room was an open screened porch, provided with canvas curtains. The patients were placed in both the sleeping rooms and on the porches, and after a short time was found that, as a rule, they preferred to sleep on the open porches. It was decided to build the next houses with no inside sleeping accommodations. Recently the partitions between the sleeping rooms and porches have been removed, making porches sufficiently large enough to hold four patients each.



PORTABLE HOUSES



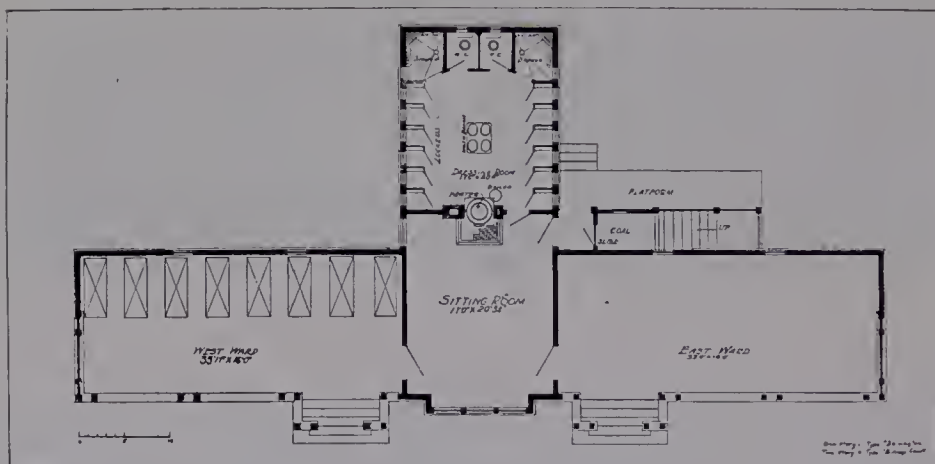


**"THE DARLINGTON" (KING LEAN-TO)**

Approximate cost per bed—\$335.

Date of erection—1906.

This was the first permanent structure built at the sanatorium. It accommodates 16 patients. This is a wooden structure, set on a stone foundation, shingled on the outside. The interior of the living and dressing rooms is ceiled. There is a recreation room in front and a dressing room with built-in lockers in the rear, each locker being lighted and ventilated by a window. A set of six wash-basins with hot and cold running water stands in the center of the dressing room. Two shower baths and two toilets are situated in the rear. There are two porches, one on each side of the living room, each of which accommodates eight patients. This pavilion is now used for substandard cases. It is heated by a stove. The showers are no longer used. (Also built 2 story. See "Billings Court.")



### **"BILLINGS COURT"**

Approximate cost per bed—\$300.

Date of erection—1907.

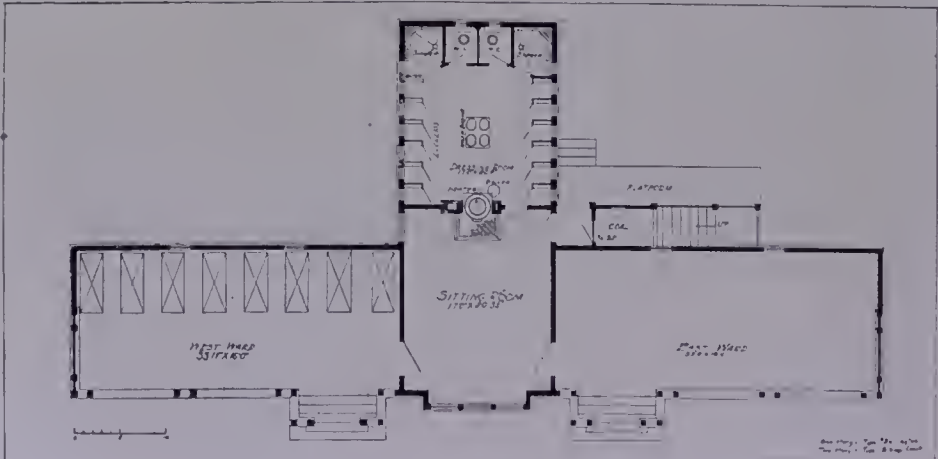
This is a two-story wooden pavilion, set on a stone basement, and accommodates thirty-two patients. It was the first of this type erected. The building is shingled on the outside, the living and dressing rooms being ceiled. Each floor has a sitting room, in front, and dressing room in the rear, with a porch on each side, accommodating eight patients. The dressing rooms have built-in lockers, sufficiently large to hold clothing, etc., necessary for the patient's daily use, each locker having a window supplying light and ventilation. Six wash-basins with hot and cold running water are situated in the center of the dressing room. There are also two toilets and showers in the rear. The experience with these pavilions led to the abandonment of plumbing in subsequent buildings erected at the Male Unit. The porches are open and deep, and protection from severe snow and rain storms is afforded by rolling curtains, the use of which, however, is only necessary occasionally. Heat is supplied by a hot-air furnace located in the basement. At the present time this building is used as the Reception Pavilion of the Male Unit.



## ‘BILLINGS COURT’



**Note.** It will be observed that the side elevation is shown on about double the scale of the front elevation.





**“BENSEL LODGE”**

Approximate cost per bed—\$200.

Date of erection—1908.

This building, a one-story wooden structure, is a type much employed at Otisville. The dressing and living rooms are built over a stone basement, the porches rest on stone piers. The exterior is shingled. This very well built structure has a ceiled central dressing and living room with a porch on each side. The living room contains open steel lockers for patient's clothing and enameled steel wash-stands. Three large three-sectioned windows in the front of this room, reaching from the ceiling to the floor, are kept open during the day, making the ventilation practically the same as on the porches. The room is heated by stove. There is a clothes room in back of the dressing room for suits, etc. Each porch is divided into two parts by a central partition which is about six feet high, with two beds on each side. This gives the patients more privacy and at the same time saves porch space. The porch is extended out beyond the beds, for sitting out purposes. Buildings of this type for the housing of only a small number of patients are very useful, as it is easier to fill them with patients who are congenial. Where the group of patients is small less trouble is liable to be experienced from quarrels, etc. This has proved to be a very popular type of building. The basement of this building contains four toilets and a urinal for the use of patients from this and several neighboring pavilions.

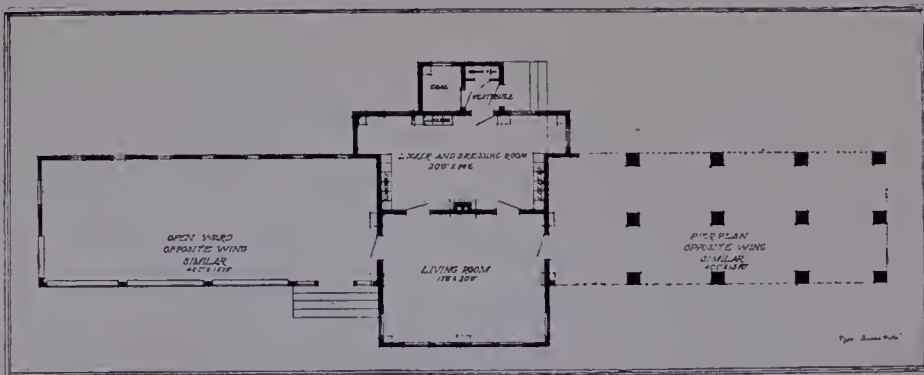


### "BUENA VISTA"

Approximate cost per bed—\$110.

Date of erection—1909.

This is a one-story wooden pavilion, shingled on the outside, with the interior of the sitting and dressing room ceiled. The building is set on stone piers. There is a large sitting and dressing room in the middle, with a porch on either side, each porch accommodating ten patients. The dressing room contains open steel lockers, and white enameled wash-stands. There is no plumbing in this building. The contour of the land at the Male Unit (very gradual slope) makes the erection of more than a very limited number of two-story structures inadvisable, while on the other hand small buildings of the eight-patient type, on account of the number of patients to be treated, necessitates a great scattering of the buildings, and materially increases the difficulties of administration. A number of one-story pavilions of this general type have therefore been erected at the Male Unit. This pavilion is stove heated. Partitions between the beds, forming cubicals for two beds, were recently added.



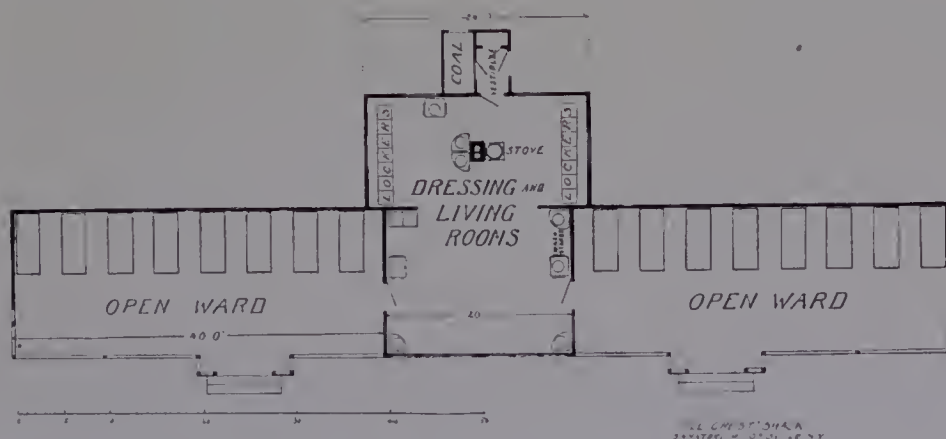
**"HILL CREST"**

Approximate cost per bed—\$90.

Date of erection—1908.

Capacity—16.

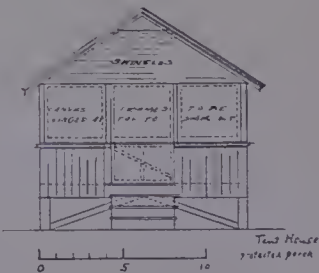
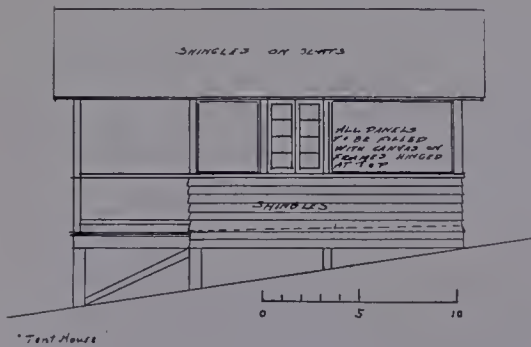
This is a frame structure, single story, built on stone piers. It has a large central sitting and dressing room, with 16 open-steel lockers situated in the rear. It also contains eight white enamel steel wash-stands, with two hand-basins for each, for hand and face toilet. The porches are situated on each side of the dressing room and accommodate eight patients each. This pavilion is heated by a stove. It is of very cheap construction, the sides of the porches are a single layer of boards, and the roof is tin. The sides of dressing rooms are sheathed on the inside.



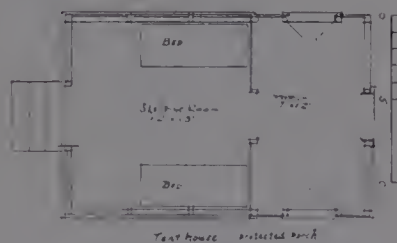
TENT-HOUSES (Men)

Date of erection—1910.  
Capacity—2.

These are wooden tent-like structures set on posts and shingled on the outside. The interior is unfinished. Each has a dressing and sitting room in the rear and a porch in front, which is divided by a railing into two parts. The rear part holds two beds. A hammock may be swung on the porch. Roller curtains afford protection against severe rain and snow storms. The dressing room is heated by an oil stove only when used for this purpose. Some twenty-five of these structures have been grouped together to make a tent colony. Toilet and bathing facilities are furnished by adjacent buildings. Two incinerators with two seats each are being installed for the use of this tent-house colony. Because of their privacy and general coziness, these small houses are much sought for, even during cold weather.



# TENT HOUSES





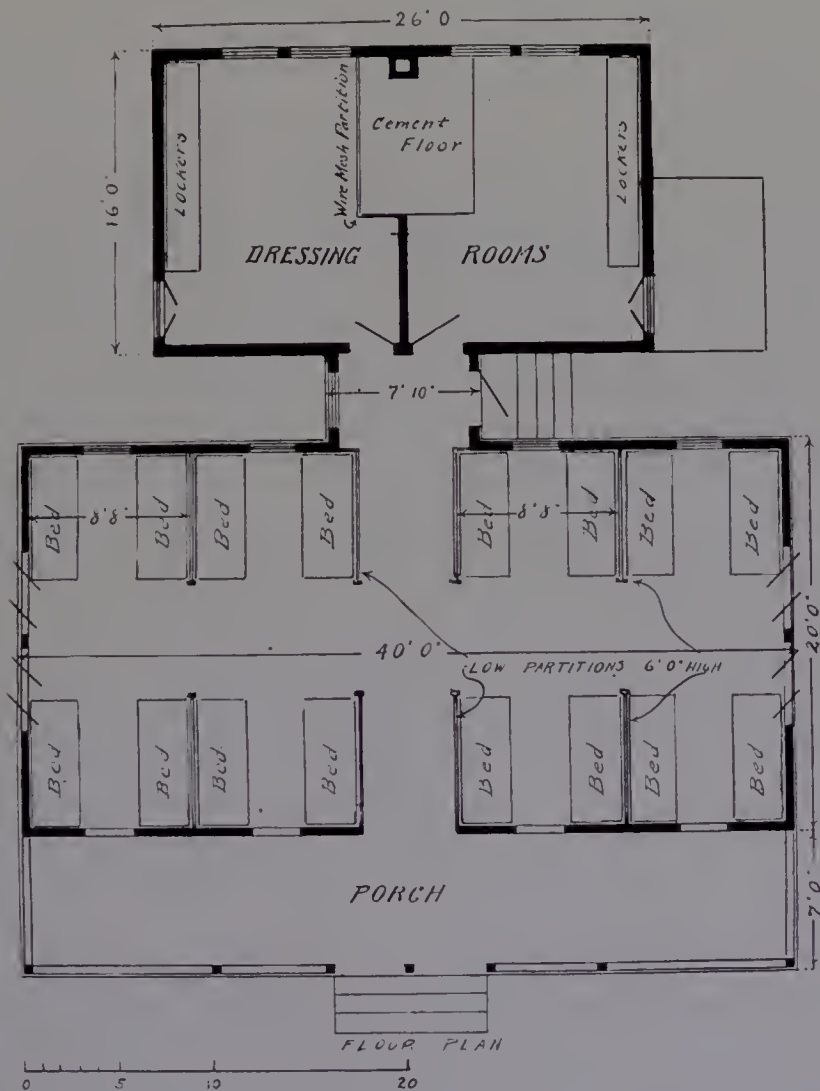
**“HIPPODROME” (Children)****(A TENT HOUSE)**

Date of erection—1911.

Capacity—16.

This building at first was a large tent, for which, on account on its size, it was thought best to make the frame heavy so that it might subsequently be converted into the porch of a wooden building, in case the canvas failed to stand the effects of heavy winds. It was planned to use this tent house only during the summer months, but the pressure for vacancies for children was so great that the attempt was made to operate it the year 'round. Accordingly, a dressing room was built in the rear. It was found not feasible, however, to use a canvas tent in winter, and it has now been converted into a frame structure. The dressing room is connected with the porch by a passageway. The entire structure is set on tile and cement; it is shingled on the outside and has a ceiled interior. It contains 16 lockers and is stove-heated. There is also provided a small room for the attendant.





HIPPODROME TENT HOUSE  
SANATORIUM, OTISVILLE, N. Y.

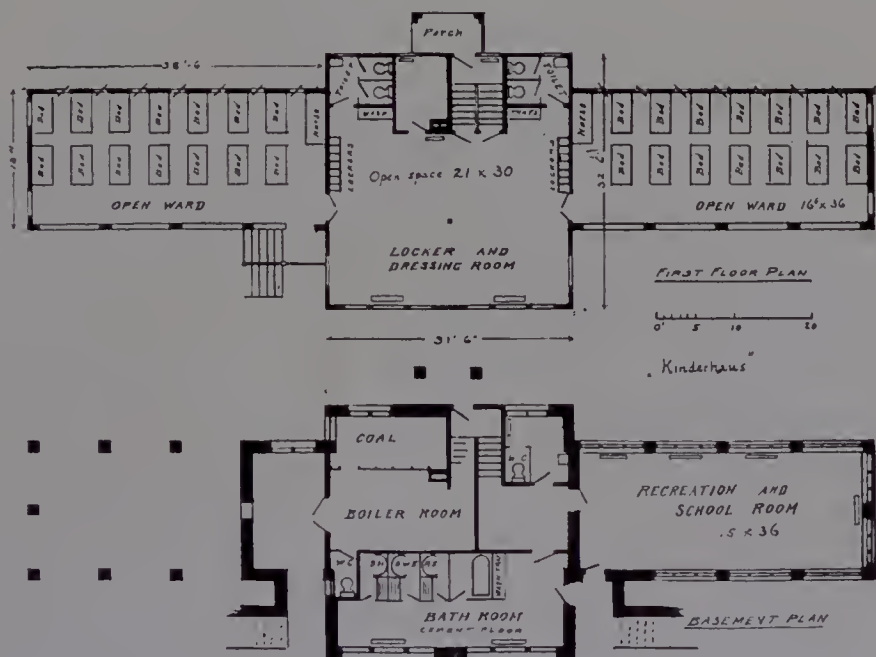
### **“KINDERHAUS” (Children)**

Date of erection—1910.

Approximate cost per bed—\$200.

This was the first children's building erected at Otisville. It is a one-and-a-half-story structure, on a stone foundation, shingled on the outside. The interior is ceiled, with the exception of the bath rooms and school room, which are lined with cement. The basement contains a diet kitchen, where milk and crackers are served between meals, a school room, toilet for school room, a bath room equipped with one tub and four showers, a boiler room and a storage compartment for valises and clothes not in daily use. The first floor consists of a large living and dressing room, with porches on each side. This room is ventilated by large front and side windows, with transoms near the ceiling. It is equipped with two sinks supplied with hot and cold water. Patients wash with running water. Sputum cup racks of sufficient size to hold all of the boxes used by the patients are placed above the sinks. In the rear of this room are two toilet and slop-sink rooms. The sinks are used for washing the teeth. Small tables and chairs are provided for the smaller children. The porches are wide and hold two rows of children's beds, cribs being provided for the youngest patients. (A nurse sleeps on each porch with the children.) Protection is afforded from severe rain and snow storms by canvas-lined screens which are hinged above and kept up by ropes led through pulleys and weights at the other end. In stormy weather these completely close the front, keeping out rain or snow, and are noiseless even during severe winds. They have proved far superior to the porch roller curtains, which not only permit the entrance of snow in severe weather, but are exceedingly noisy during high winds. Even when the storm screens are down ample ventilation is secured by the rear windows. There is a coat room in the rear of this floor. The second floor is used for isolating acute infectious diseases and is equipped with toilet and bathing facilities. The floors are of comb-grain Georgia pine. The building is heated by low pressure steam.





"KINDERHAUS"  
Nurses' Quarters, Saratoga Springs, N.Y.



**“SOUTH VIEW” (Children)**

Date of erection—1907.

Approximate cost per bed—\$300.

Capacity—22.

This is a single story wooden building, set on stone piers, and having a small basement under the dressing room. It is shingled on the outside. A long porch is situated in front and there are two dressing rooms in the rear. Each dressing room is equipped with built-in lockers, ventilated and lighted by windows, and sufficiently large to hold clothing necessary for the patient's daily use. Each dressing room has two hand basins with running water. The porch is divided by a long railing, which extends, with the exception of three passageways, its entire length. The rear portion of the porch is used for beds; the front for sitting out purposes. The sleeping quarters receive additional light and ventilation through a break in the roof, along which is a row of transoms. An open-air school room has been partitioned off on the west end of the porch, where school sessions are held the year 'round. This pavilion is used for small boys. Twenty-two beds are placed on this porch and at night every other bed is pulled out to the railing. The porch is so deep that no trouble is experienced from driving rains or snow storms. The dressing room is heated by a hot air furnace, located in the basement.



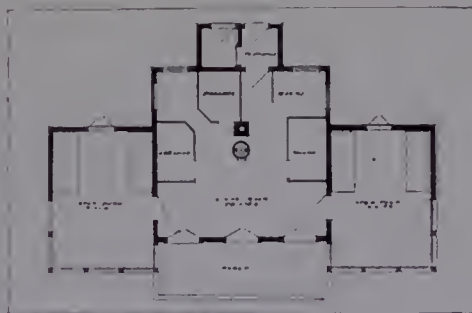
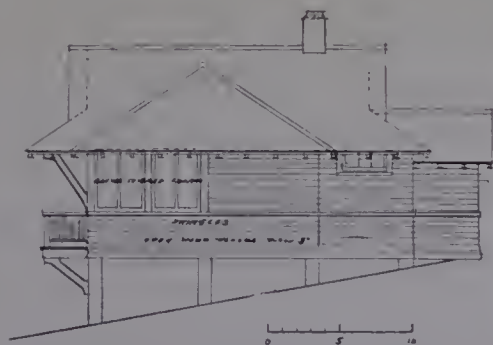
**"THE BUNGALOW"**

Date of erection—1910.

Approximate cost per bed—\$150.

Capacity—4.

This is a one-story wooden structure, shingled on the outside, set on tile and cement piers. The sitting and dressing room is ceiled; the porches are left unfinished. The sitting room has three large windows in front. Four dressing compartments with wooden sides six feet high are situated in the rear of this room. There are two porches, one on each side and opening into the sitting room. Each porch provides quarters for two beds, also ample sitting out space. The building is stove heated and has no plumbing. The beds are protected from severe weather by roller curtains. This building is very popular and useful for housing small groups of patients.



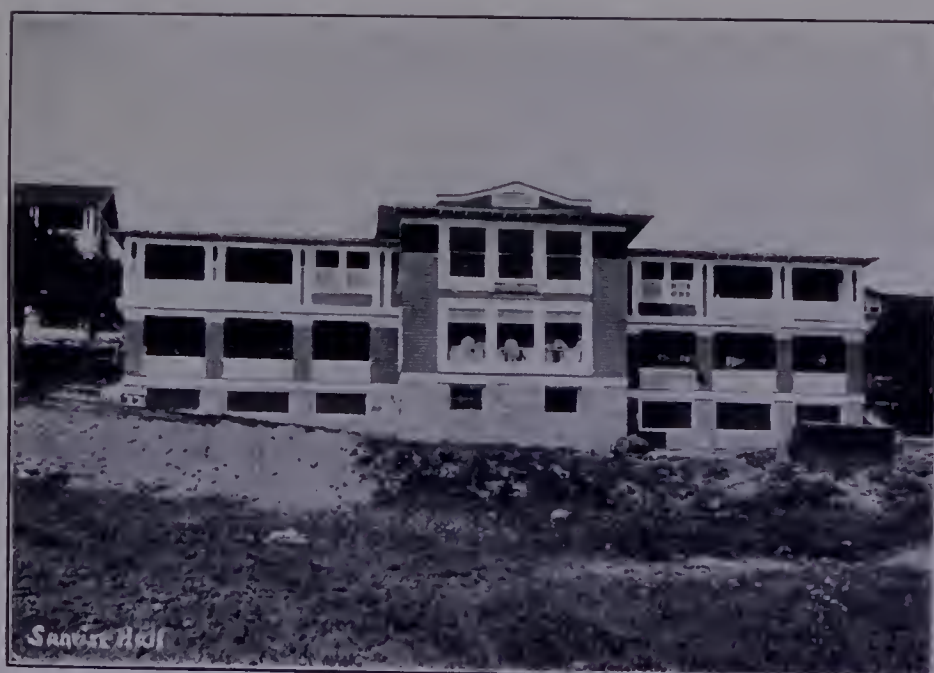
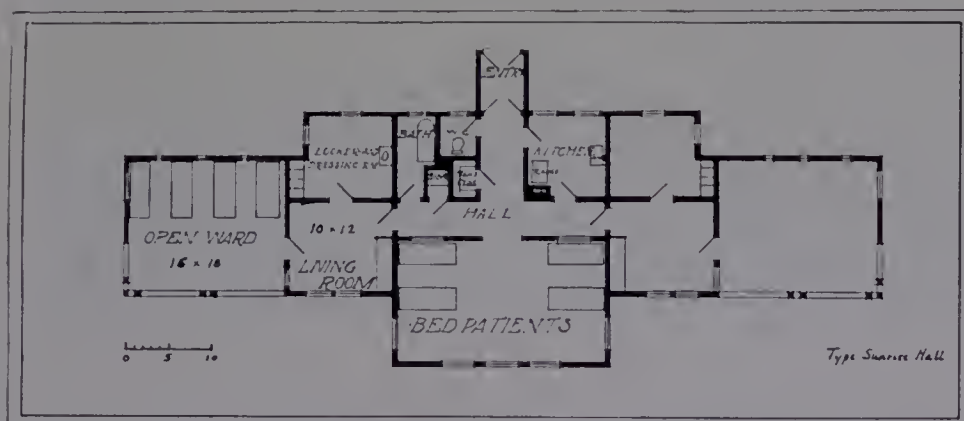
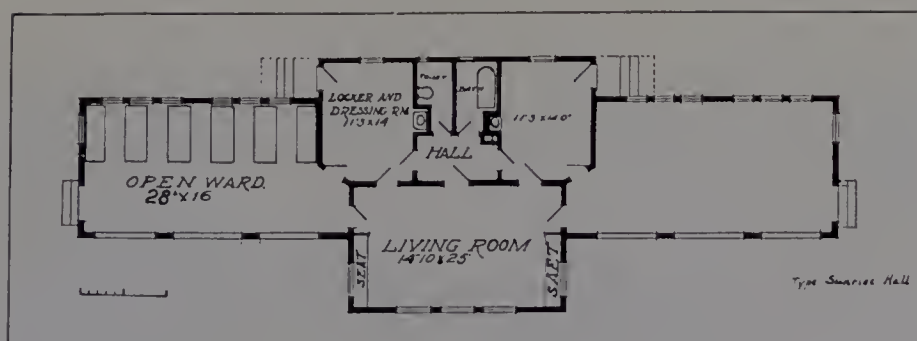
**“SUNRISE HALL” (Women)**  
**(CONTAINS THE INFIRMARY)**

Cost per bed—\$150.

Date of erection—1909.

This is a two-story wooden structure, shingled on the outside and with a plastered interior. It is set on a stone foundation, with a commodious basement. This was the first building erected at the Women's Unit. The contour of the ground at the Women's Unit (side hill) was found especially adaptable to the construction of two-story buildings, and these have been a feature at this unit from its inception. The roof of this pavilion was purposely made low so as not to obscure the view of buildings in the rear. It was recognized from the first that women patients would require structures differing materially from the type of pavilion prevailing at the men's unit, so this building was provided with bath tubs, toilets and wash-basins, with running hot and cold water, on each floor, and heated by a low-pressure steam boiler, situated in the basement. The first floor has two porches, one on each side, which open into two dressing rooms. The dressing rooms contain open steel lockers for clothing and other articles necessary for the daily needs. (The remainder of the patient's effects are stored until required.) There is a large front room which also opens onto the porches. This room has large disappearing front windows, and two side windows, which gives it practically as good outside ventilation as that of the porches. This floor is used as the Reception Division at the Women's Unit. The Women's Unit Infirmary is situated on the second floor of this building. It has two porches, one at either end, accommodating 4 patients each. These have sliding sash for winter use, and are screened during the summer months. The east porch is adjacent to the nurses' duty room. Back of the nurses' room is a private room which is used for moribund cases or patients requiring special care. The center room, which corresponds to the one on the first floor, is used for bed cases. It accommodates 4 patients. The west porch also accommodates four beds and opens into the infirmary sitting room. Back of the sitting room is the dressing room, which contains an open steel locker for each patient. This floor also contains a diet kitchen, utensil room and linen closet. The floors of this building are comb-grain of Georgia pine, with strips of "battleship" linoleum on the infirmary hall. Fire escape is by means of bridges situated in back of each infirmary porch and running directly to a bank in the rear. Such a bridge also constitutes the entrance to the infirmary. See illustration on page 37.





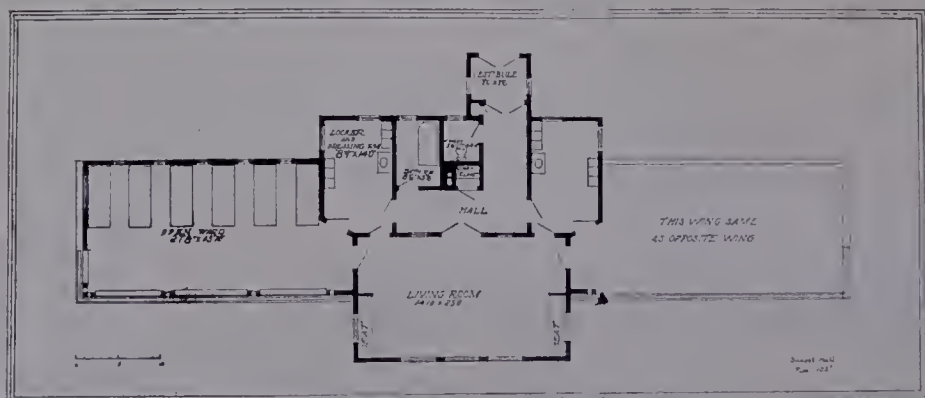
### “SUNSET HALL” (Women)

Cost per bed—\$180.

Date of erection—1909.

This pavilion is a two-story structure, placed on a stone foundation, and has a large basement. The building is of wood, shingled on the outside, with plastered interior. So far as porches and rooms are concerned, both floors are similar to the first floor of “Sunrise Hall.” The center room of the second floor is fitted with tables, etc., and used as a recreation room for all patients housed in this building. Sinks for tooth-washing are provided on each floor. The entrances to the second floor, as well as fire-escapes from the porches, are by bridges which extend to a bank in the rear. A large well-ventilated attic provides storage facilities for this building and for its neighbor.

This structure is used for housing girls between 14 and 18 years of age. The dressing rooms were found to be smaller than desirable, and this defect was rectified in the next pavilion erected. The capacity of this building is twenty-eight.





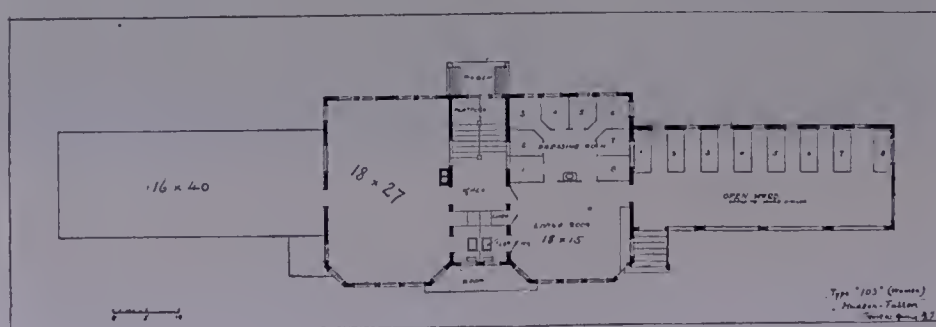
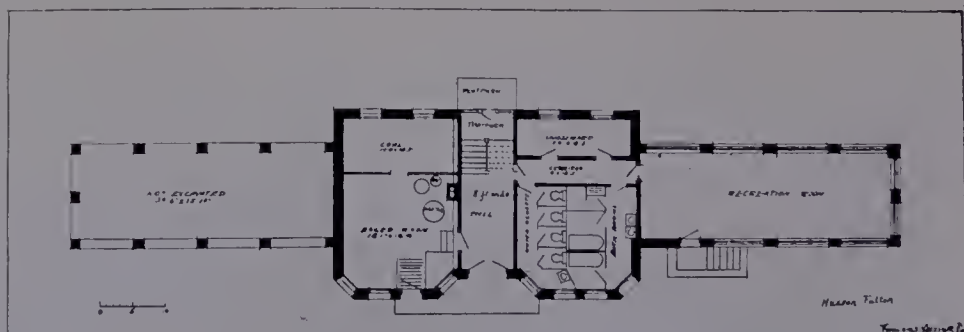
This cut shows the bridge to the second floor.

### “HUDSON-FULTON HALL” (Women)

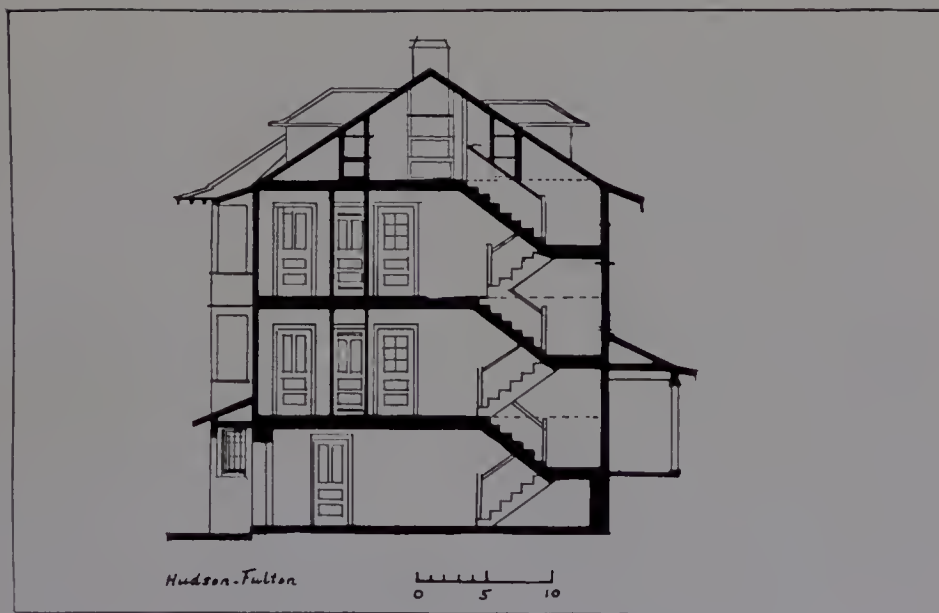
Cost per bed—\$170.

Date of erection—1910.

This building is a two-story wooden structure, with stone foundation and basement, shingled on the outside. All inside rooms are ceiled; the porches are left unfinished. Each floor has two porches which accommodate ten beds and open into a sitting room, 18 x 15, which has six large windows in front. Back of the sitting room and separated from it by a skeleton partition, is a dressing room which contains eight 4 x 5 dressing compartments, with wooden sides 6½ feet high. Each compartment is lighted and ventilated by a window. This arrangement affords a great degree of privacy for patients while dressing, and also has a decidedly good moral effect. The skeleton partition makes the building much cooler during the warmer months by allowing direct circulation of air through both rooms, while light is also obtained from front and rear. A sink room opens off from each sitting room. The building is divided by a central hall, which extends from basement to attic, and practically converts it into four eight-patient pavilions. A large, well-lighted attic affords storage compartments for each girl, with hooks for coat, skirts, etc. A recreation room under the east porch is used for amusement purposes, is equipped with a piano, and contains a library. Bathing and toilet facilities are situated in the basement. This arrangement permits a great saving in plumbing. A fire-escape bridge leads from each second porch to a bank in the rear. The basement floors, with the exception of the recreation room, are of cement; the remaining floors are of comb-grain Georgia pine.







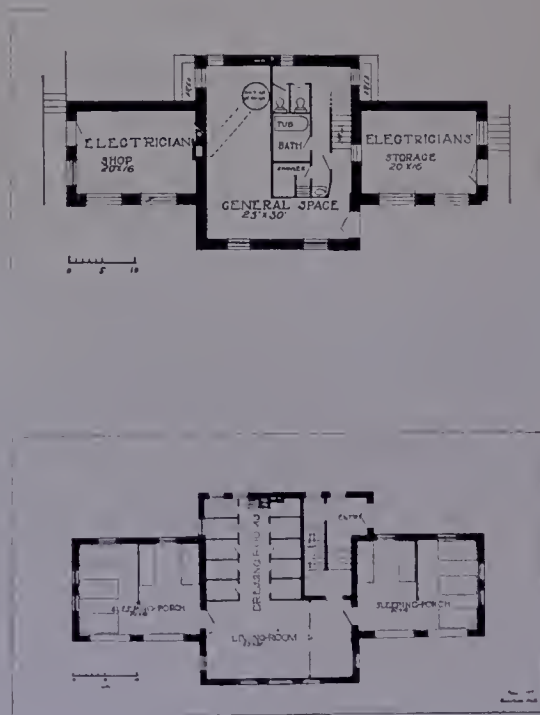
### “SUNSHINE HALL” (Women)

Date of erection—1911.

Approximate cost per bed—\$320.

Capacity—20.

This building is a two-story hollow tile and cement building on a stone foundation. It has a large basement, two floors for patients' quarters, consisting of recreation and dressing rooms, with porches on each side, and has an attic which is used for storage purposes and as a sewing room. Each dressing room has ten compartments with wooden sides  $6\frac{1}{2}$  feet high, and sufficiently large for dressing purposes. A skeleton partition separates the sitting and dressing rooms. Each porch is divided by a single partition and accommodates five patients. Considerable privacy and excellent light and ventilation are features of this type, as also of the preceding. There are sinks in the back of each dressing room. Patients wash with running water. There are three toilets, one shower bath and one bath-tub in the basement. The rooms and porches are plastered. The floors of this building are comb-grain Georgia pine, with the exception of the basement, which is cemented. The basement wings are used for shops. This was the first hollow-tile structure erected at Otisville. Heat is furnished by a hot-air furnace.





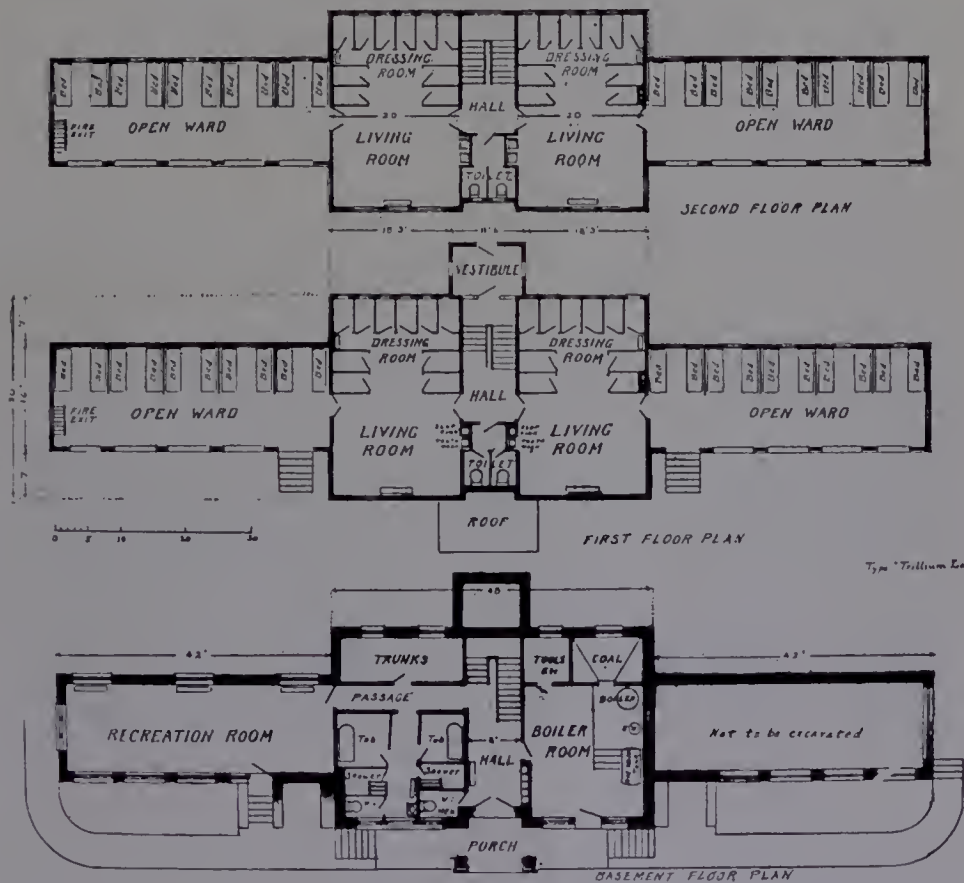
**“TRILLIUM LODGE” (Women)**

Cost per bed—\$300.

Date of erection—1912.

This building, which is in the process of construction, is a two-story wooden structure, on a stone foundation, stuccoed on the outside. The basement contains a low pressure steam plant, and bathing facilities. There is also one room under each lower porch for recreation and storage purposes. The first and second floors are used for patient's quarters and are divided by a central hall from basement to attic, which divides the pavilion into four sections, with living accommodations for ten patients each. Each section has a front sitting room and rear dressing room, separated by a skeleton partition. Each dressing room contains ten 4 x 5 compartments for dressing purposes and the storing of patient's daily necessities. There are slop and tooth brushing sinks directly off from each sitting room and two toilets on each floor. The porches accommodate ten beds each, four skeleton partitions separate the beds into groups of two. This feature, devised by the writer and first used in the “Bensel Lodge” type, not only effects great economy in construction, by saving the space between four beds on each porch, but also secures protection against droplet infection. It provides for excellent ventilation and assures rather more privacy than the ordinary type of construction. This type of structure, on account of the great saving in porch space, roofing and foundation, enables the furnishing of more comforts at a relatively small cost.

“TRILLIUM LODGE”



Type "Trillium Lodge"



### SECTION III

#### ADMINISTRATION BUILDINGS, INCLUDING KITCHENS, DINING HALLS, DORMITORIES, LAUNDRIES, ETC.

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#### MALE DINING HALL, KITCHEN, AND INFIRMARY (OTISVILLE SANATORIUM)

The dining hall as originally constructed was regarded as a temporary structure and was designed to accommodate 125 to 150 patients. As the institution increased in size, numerous additions and alterations were made to meet the new requirements. The type of the building and its arrangement is therefore to be regarded as an adaptation of an older building rather than as a new structure.

The building is a frame, shingled structure. Its interior is plastered and the building is steam heated. The dining hall is in front and is flanked at each end by a solarium subsequently added. The west solarium is used as a recreation room. It contains two pool tables for patients' use and the patients' coöperative store. The dining hall accommodates 165 at one time, there being two servings at each meal period. The front of the dining hall is lined with large windows and transoms, and there are ventilators in the ceiling. A cloak-room is provided at each entrance. The east solarium is used as the library and reading room.

The serving and the dish-washing room is in the rear of the dining hall, and connected by two doors, one opening in, the other out. It is equipped with steam and carving tables, coffee and tea urns, a steam dish warmer and a three-reservoir, hand-operated, dish-washing apparatus. This room opens into a fully equipped kitchen, connected with which is a supplementary kitchen in which are stock pots, vegetable steamers, a steam roaster, and a large fireless cooker. Back of the kitchen is a work room, for the preparation of vegetables, etc. The linen room is situated to the rear of the work room. On this floor there is also a helper's dining room, a sewing room, and an office for the head nurse and dietitian.

The infirmary is situated directly over the rooms in the rear of the kitchen. It was placed here for economy in administration. It has one double room, five single rooms, and a small ward containing six beds. The rooms are in front, i. e., to the south, while the ward is at the north side of this floor. Separated from these by a hall is a diet kitchen, bath room, a nurses' duty room, and an operating room. The floors are comb-grain Georgia pine, with a strip of "battleship" linoleum in the hall. The rooms open out on a porch and have large sectional windows which reach to the floor, and during pleasant weather the beds can be moved out. The porch is



glazed in winter and screened during the summer months. An inclined walk reaches from the ground to the west end of the porch; this is used as an entrance and also for carrying in stretcher cases.

The basement contains adequate bathing facilities for all of the ambulant cases in the Male Unit. It is also equipped with appliances for simple hydrotherapeutic treatment. The basement contains a battery of toilets and urinals, boiler rooms and storage compartments.

On the third floor of the infirmary wing are dormitory quarters for domestic help. These are provided with separate bathing and toilet facilities.

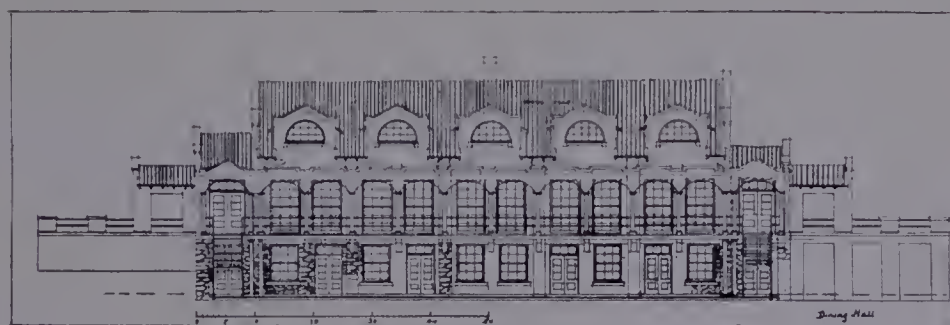
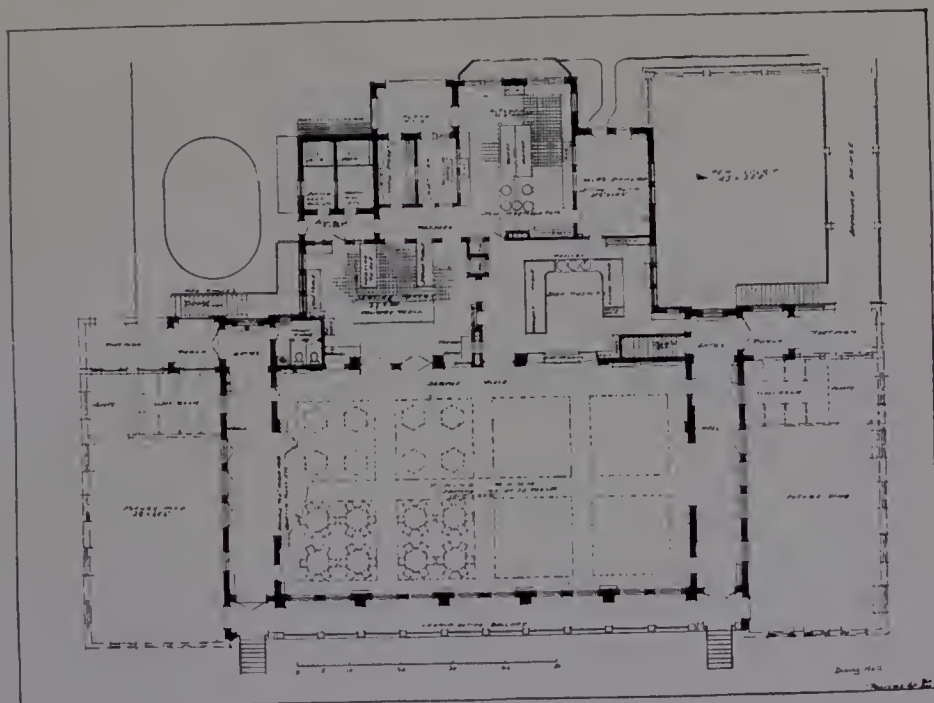


**WOMEN'S DINING HALL AND KITCHEN****(OTISVILLE SANATORIUM)**

Approximate cost—\$40,000.

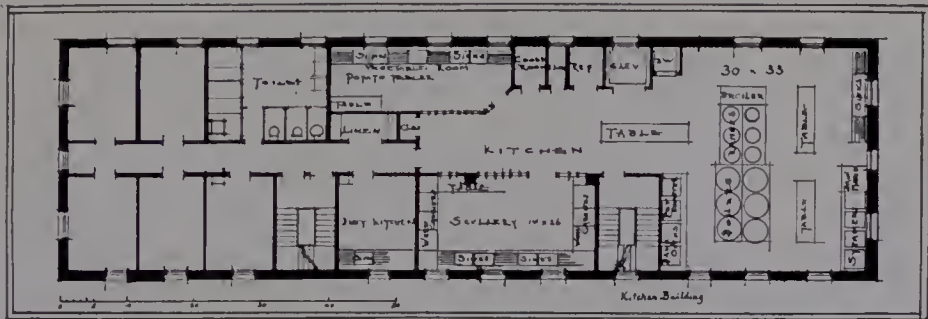
Date of erection—1912.

This is a hollow tile and cement building, set on a stone foundation, and is nearing completion. The roof of the dining room is of wood covered with tin; it is carried by iron girders. This obviates the use of pillars and thus simplifies administration. The dining room has a seating capacity of 192. The front will be lined with windows that reach to the floor and open out on a long balcony. Ample cloak rooms are provided at each entrance. The tables are to be hexagonal and will accommodate six people. These will be arranged in twelve groups of four tables each. Two patient waitresses will be assigned to each group and will be provided with a light tray carriage to facilitate the work and render the carrying of heavy trays unnecessary. Two solaria will be built later, one on either end of the dining room. One will be used for games and the other for sewing, reading, etc. The floors of the dining hall will be covered with "battleship" linoleum set in cement. The serving and dish-washing rooms are situated to the rear of the dining room and open into it by two doors. The serving room contains steam and carving tables and a large delivery table. Two counters open directly into the dining hall; bread is served over one, and tea, coffee and milk over the other. Hand basins with hot and cold running water are provided for the waitresses. The dish-washing room is equipped with a three-reservoir dish-washing machine, operated by electricity. A large sink, operable from three sides and placed at one end of the long drip table, will be provided for hand-washed dishes and silver. A large dish warmer is placed between this room and the dining hall so that it can be operated from both sides. The kitchen has two ranges, set in the center of the room, back to back. The flues pass under the floor to connect with the chimney. This does away with space for the collection of dust. The kitchen is also equipped with steam kettles, steam roasters and a fireless cooker. Garbage can be sent directly by dumbwaiter from the serving room, dish-washing room and kitchen to the basement, where special provisions have been made for its reception. The dietitian's office is placed adjacent to the kitchen, with a window between, so that the kitchen operations are observable from the office desk. Special facilities are provided in the kitchen and serving rooms for the weighing of foods, etc., coincident with determining the caloric content of the dietary. Cold storage compartments, with one section for meat and another for milk, eggs and butter, together with a store room for groceries, etc., are placed in the rear near the office. The basement is large, dry and very well lighted. Besides a vegetable preparation room which connects with the kitchen by a dumbwaiter, it contains a boiler room and bath and toilet rooms. Much of the basement space is as yet unassigned. Coal is brought to the boilers by trolleys. The floors of the serving, dish-washing rooms and kitchen are of six-inch buff tile. The floor of the basement is cemented.

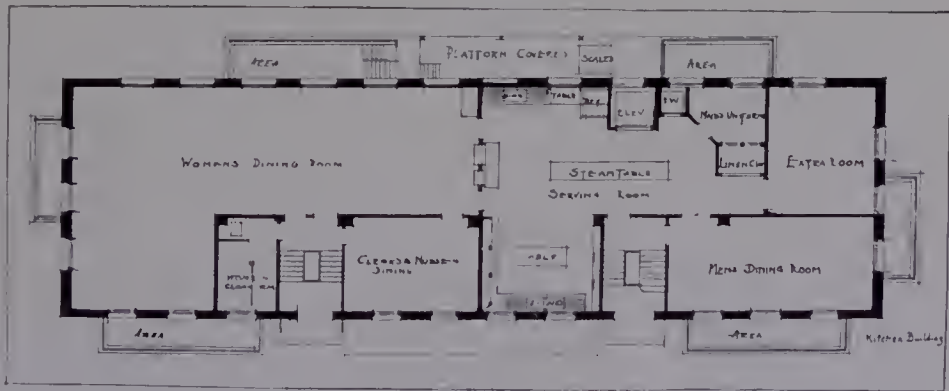


### KITCHEN BUILDING (KINGSTON AVENUE HOSPITAL)

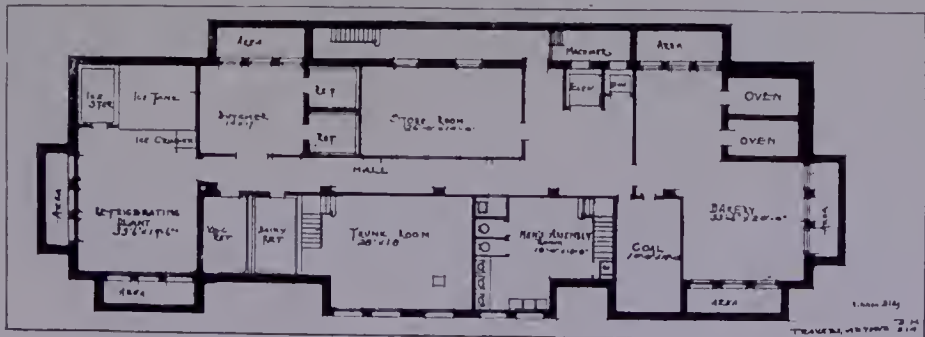
A three (3) story brick and sandstone building. The cellar contains a bakery, cold storage, store room for kitchen and bakery supplies, a milk room, a butcher shop with proper refrigeration and a refrigerating plant. On the first floor there is a dining room for the female help which will seat 125 people. There is a dining room for clerks, and a dining room for male employees. In the center of the building there is a service room containing china closets, steam table, warming table, dish-washing apparatus and a refrigerator. The second floor is a dormitory for maids, containing 15 rooms and ample bath and lavatory facilities. It also contains a sitting room for the maids. The south two-thirds of the third floor represents the cooking kitchen. It contains a six (6) hole range, a broiler, two (2) soup boilers, a cereal cooker and four (4) ham boilers; it also contains a steam table, serving table and a kitchen sink. Off of this kitchen there is a scullery with racks for the service cans and wards, opposite which there is a vegetable room containing sinks and vegetable peelers. There is on this floor also a diet kitchen for the preparation of special diet. The north one-third of the building is devoted to dormitory purposes and has an entrance separate and apart from the kitchen proper.



Third Floor.



First Floor.



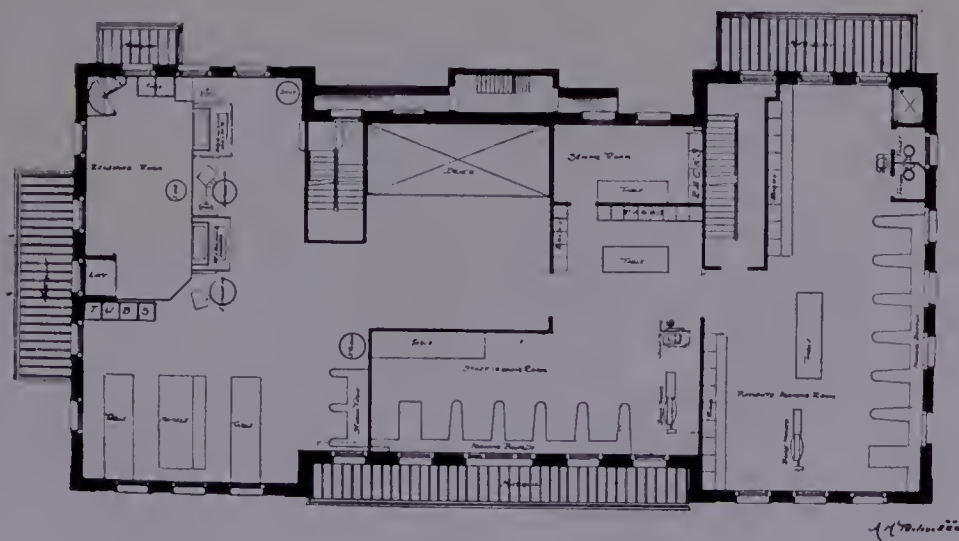
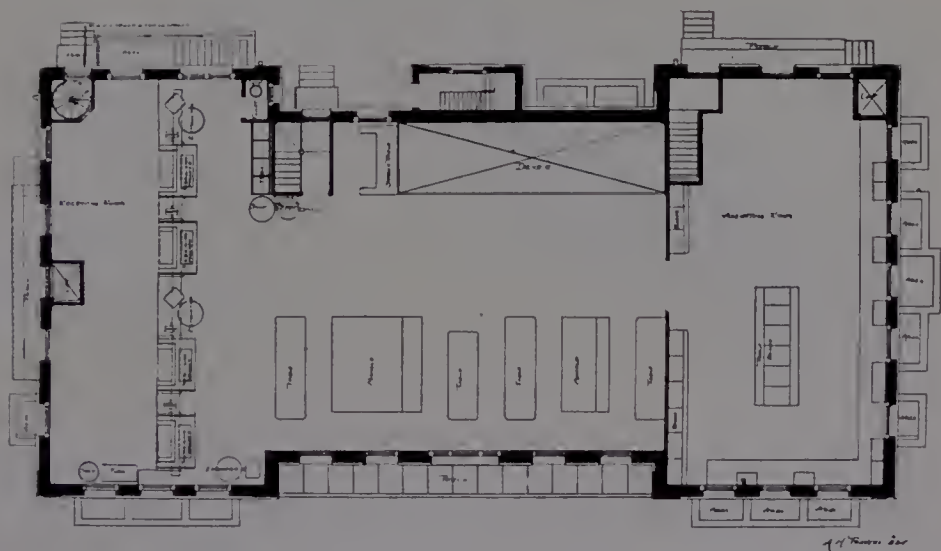
Basement.



### LAUNDRY (KINGSTON AVENUE HOSPITAL)

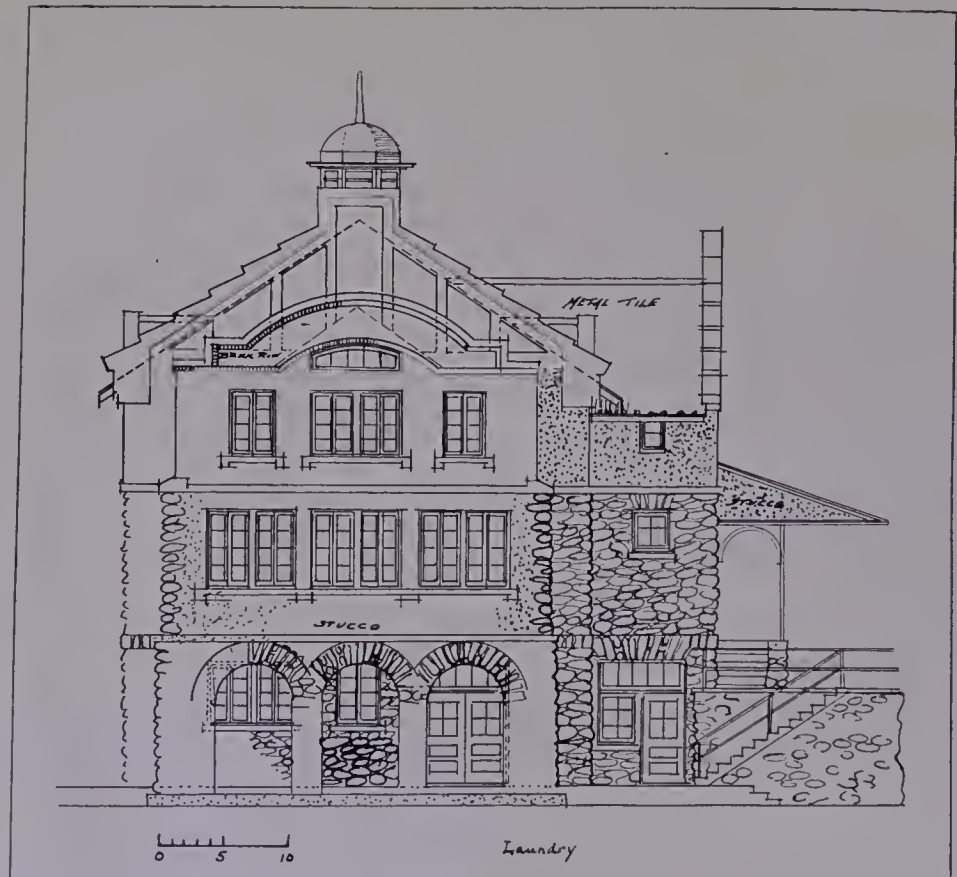
A three (3) story brick and sandstone building. The first two (2) floors are used for laundry purposes and the top floor for a dormitory. The building is 50 x 100 feet. On the first floor there is a receiving room for soiled goods, hermetically sealed from the rest of the building. The iron partition separating this room from the mangle and extractor room has fitted into it four sterilizing washers. Each of these washers is provided with double doors, one of which allows the soiled laundry to be placed in the washing machine on the infected side and removed from it on the opposite clean side. Each washing machine is provided with a safety valve and thermometer. In the extractor room there are three (3) extractors; and in the mangle room there are two (2) mangles, each with a capacity of 21 ft. per minute. Opposite the mangle room there is a drying room. On the north of the building on the first floor there is a storage and dispensing room. On the second floor at the south end there is a receiving room for the employees' laundry. This room, although smaller, has the same general arrangement as the receiving room on the first floor. On this floor at the south end of the building there is also a mangle room and drying room. The north part of this floor is given over to the ironing rooms, where there are shirt and collar and cuff machines and body ironers. This laundry, which has now been in operation for three (3) years, has given complete satisfaction.

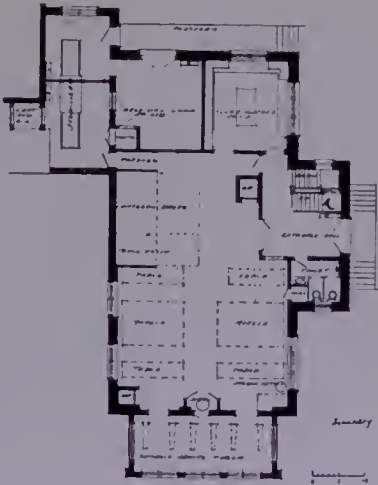
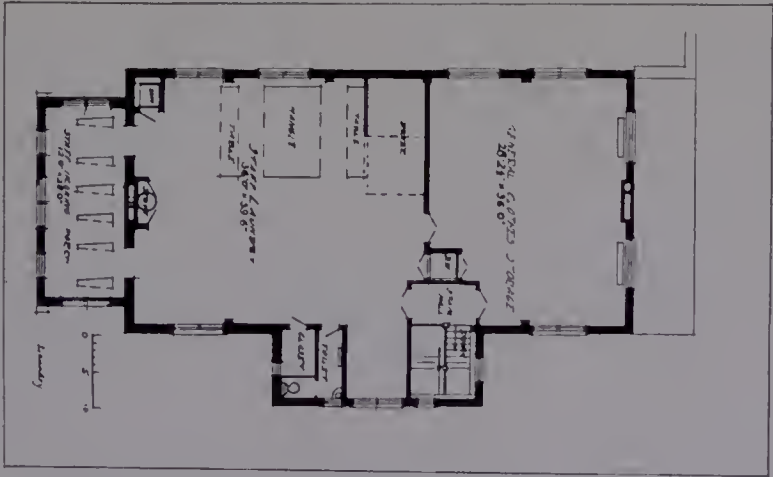




### THE LAUNDRY (OTISVILLE SANATORIUM)

This building will be a fireproof structure and is in the process of construction at the present time. It is situated on the site of the former laundry building which was destroyed by fire in March, 1911. The basement is of native stone and hollow tile, and will be fitted with separate washers and extractors for patients and staff. There will also be a sorting room and storage room for soaps, etc., on this floor. The second floor will have rooms for mangles and driers, which are to be run by electricity; a separate set for patients and staff. There will also be a room and porch for hand ironing. Another room and porch will be provided for the women patients for the ironing of shirt waists and the like. The disinfecting room is on this floor. A dumbwaiter runs from the basement to the second floor.

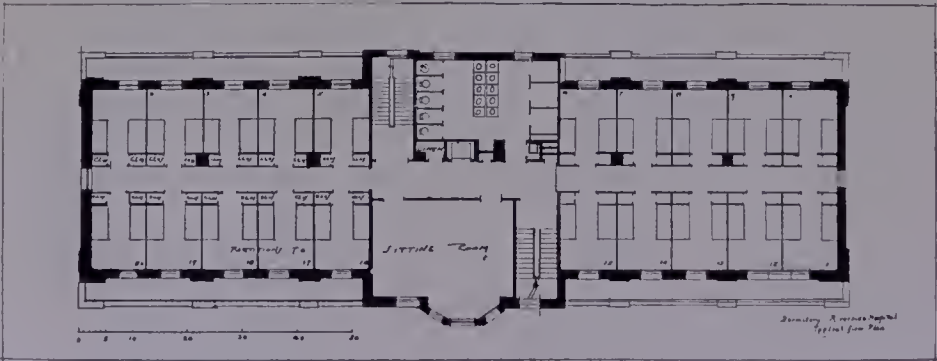
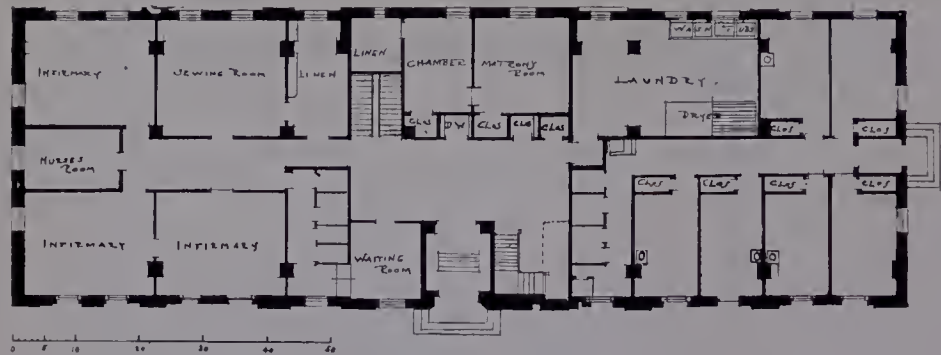




MAIDS' DORMITORY (RIVERSIDE HOSPITAL)

A four (4) story reinforced concrete building. The first floor contains an infirmary for sick maids, matrons' quarters, a small laundry and six dormitory rooms. The second, third and fourth floors have the same arrangement, as follows:

There is a central corridor running from one end of the building to the other, off of which the rooms are located. Each room has a capacity for two (2) beds, and has an outside window. In the central portion of the building there is a sitting room and ample bath and lavatory space.



## MAIDS' DORMITORY (WILLARD-PARKER HOSPITALS)

A six (6) story reinforced concrete building. On the first floor on the north side there is an infirmary for sick maids. In the central portion of the building there is a main entrance hall and the matrons' quarters. In the south end of the building there is a dormitory for internes, pending the erection of a staff house. The arrangement of the second, third, fourth, fifth and sixth floors is identical. There is a central area devoted to a reception room, bath rooms, lavatories and linen rooms, while the remainder of the entire floor is an open dormitory, there being a solid sheet-iron partition between the beds. At the head of each bed there is an iron closet and locker.





**HELP SHACK**

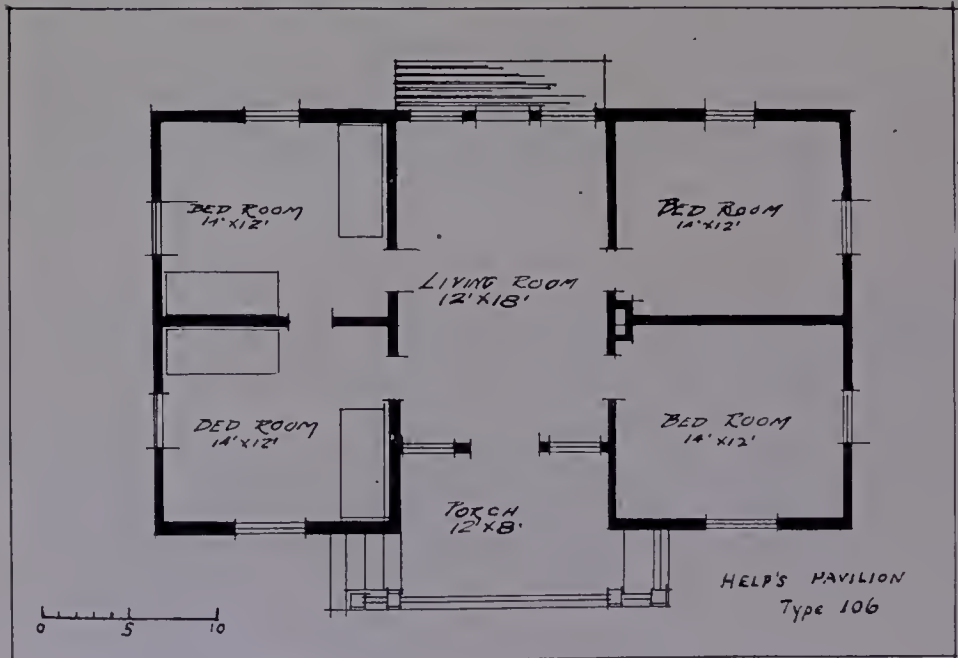
(OTISVILLE SANATORIUM)

Date of erection—1911.

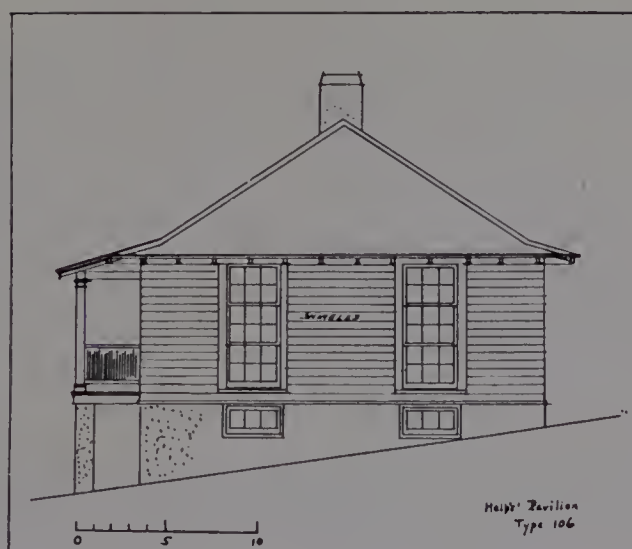
Approximate cost per bed—\$235.

Capacity—8 beds.

This is a one-story wooden structure, shingled on the outside, set on a stone foundation. It has a central living room that opens onto a front porch. There are four bed-rooms, two on each side of the living room. The front rooms have two large French windows with one three-section window on the side. The rear rooms have two large three-section windows, one in back and one on the side. Heat is furnished by a hot-air furnace and the building is lighted by electricity. All rooms are plastered and the floors are of comb-grain Georgia pine. There is a large well-lighted basement.



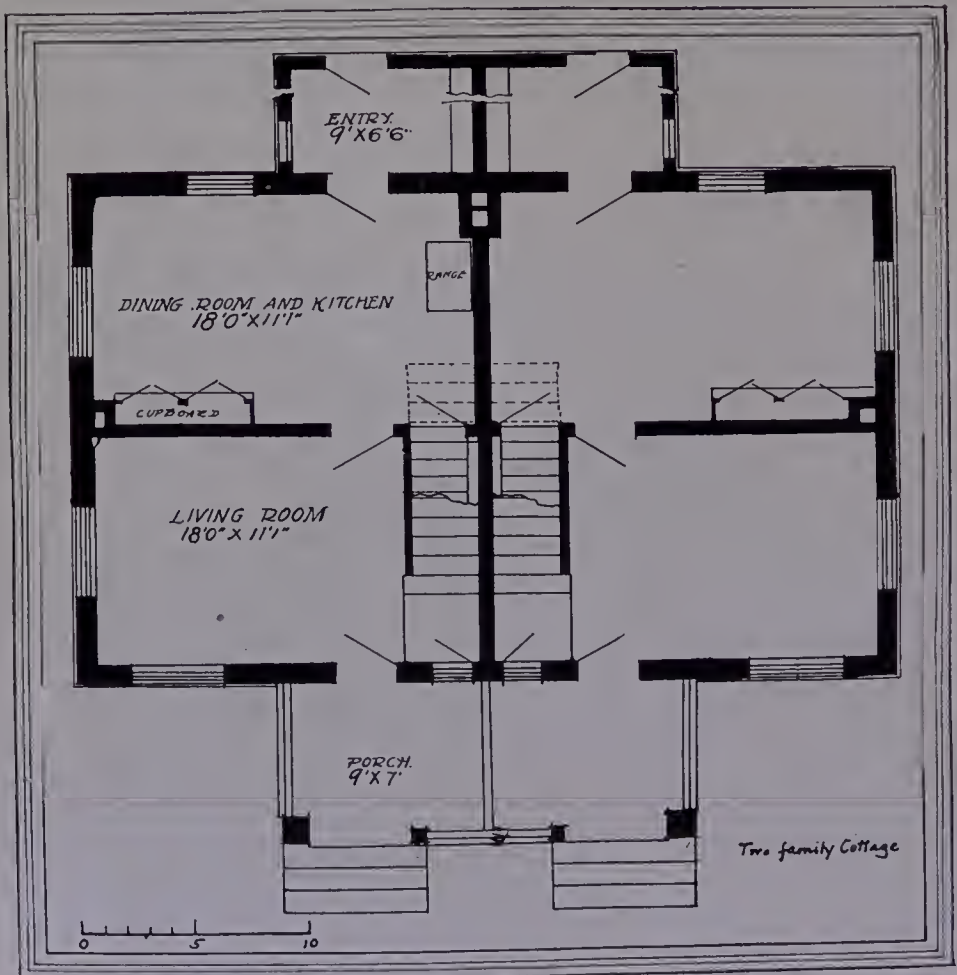


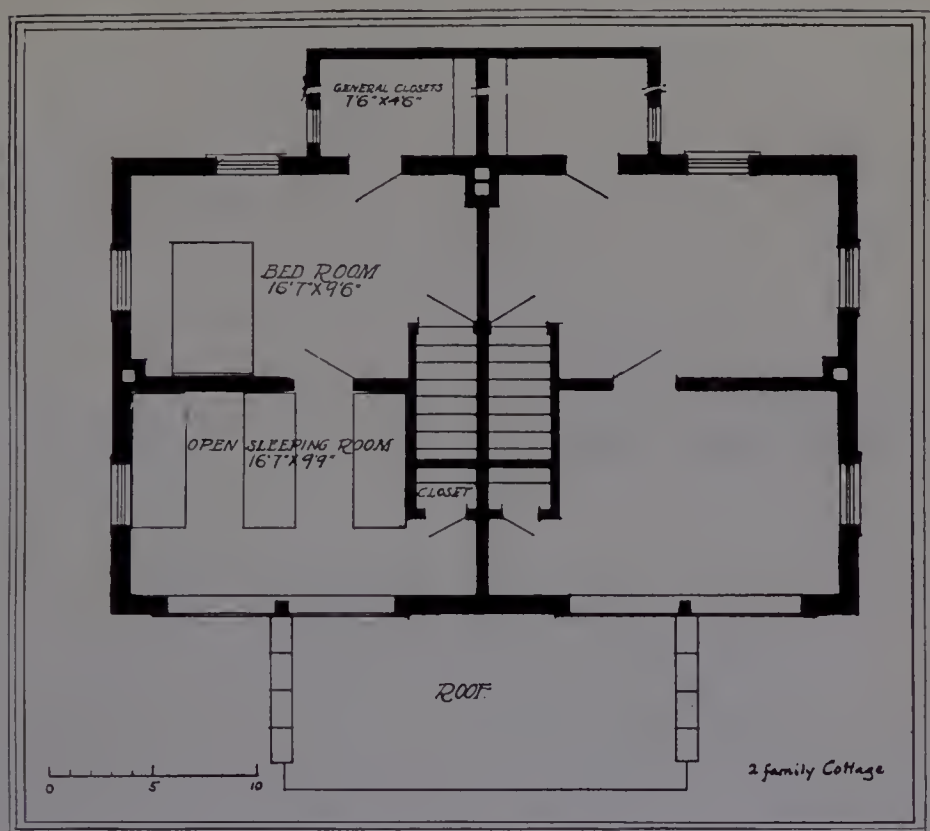


## TWO FAMILY COTTAGE OF FIRE-PROOF BRICK AND CONCRETE

Estimated cost—\$2,000.

These cottages are designed to provide accommodations for families in which one or more of the family are either convalescent or have arrested tuberculosis. They provide open air sleeping quarters for three persons. Each cottage will comfortably house a family of five persons. Experience at Otisville has shown that many cases of tuberculosis can live and work in the country without detriment, providing only that their living accommodations are of a proper kind. The cottages are provided with running water in the cellar but not elsewhere, as this involves central heating.



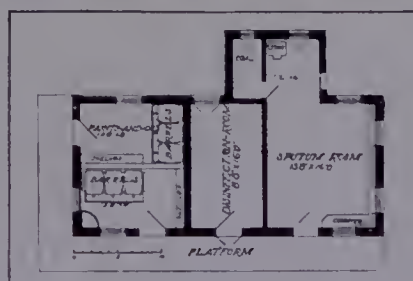
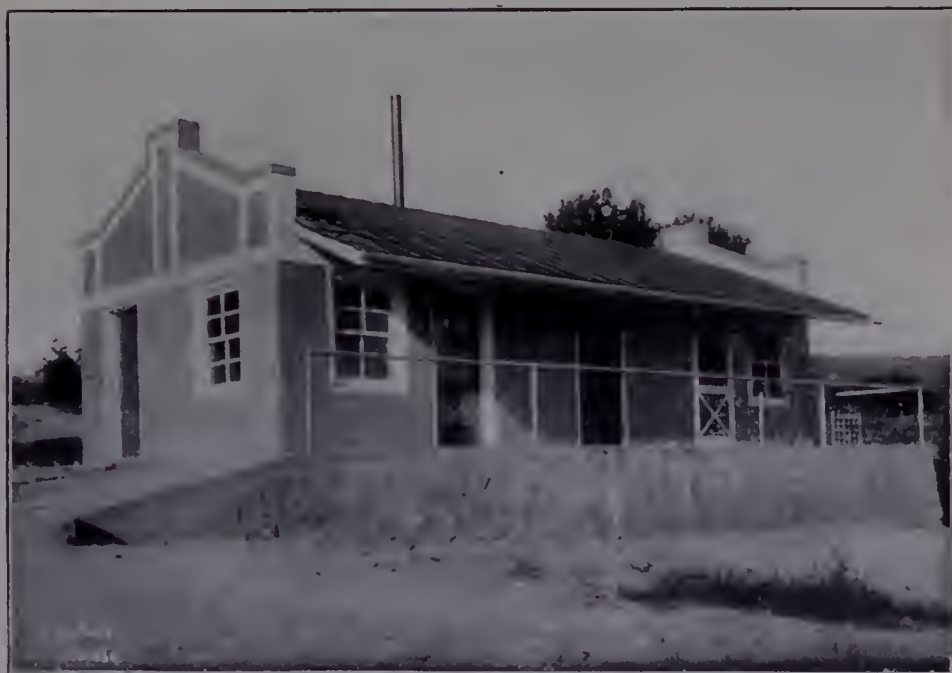




## SPUTUM DESTRUCTOR HOUSE

Date of erection—1911.

This is a fireproof structure made of hollow tile and cement. It has a sputum cup and gauze room where all of the sputum cups and gauze handkerchiefs used at the male unit are changed daily and destroyed in a modern sputum incinerator. There is also a disinfecting room and a room for the storage of oils and other inflammable materials. The roof is covered with tin.



*Sputum Destructor Building*





# PUBLICATIONS

OF THE

## DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK

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1. **ANNUAL REPORT.** A statistical and descriptive account of the year's work of the entire Department.
2. **QUARTERLY REPORT.** Vital statistics and work performed for the periods ending March 31st, June 30th, September 30th and December 31st. This report is published in the City Record, the official daily publication of the government of New York City. The small edition of reprints which was formerly issued has recently been discontinued.
3. **MONTHLY BULLETIN.** Established in January, 1911. The Bulletin contains summary tables of vital statistics for the preceding month, together with descriptive articles and notes intended for the instruction of the public and for the information of physicians and others concerned in public health work, to whom an account of the methods, aims and accomplishments of this Department may be of interest. The Bulletin is mailed without charge to a restricted list of libraries, publication offices, physicians, public health officials and others especially interested.
4. **WEEKLY REPORT.** The Department has published a weekly summary of vital statistics for many years. This is printed in the City Record, and a small edition of reprints is available for mailing to public health officials and others particularly interested.
5. **COLLECTED STUDIES FROM THE RESEARCH LABORATORY.** An annual collection of scientific papers representing the work done at the bacteriological laboratories for the year.
6. **MONOGRAPH SERIES.** A recently established series of special papers by officials or employees of the Department, each dealing with some particular problem or phase of the Department's work. These papers appear from time to time, at no specified interval.
7. **REPRINT SERIES.** The Department occasionally reprints, at its own expense, and distributes shorter papers published by its officers or employees in medical and other scientific journals. Such papers are published in a standard serial form, with a list of those available for distribution.
8. **OTHER PUBLICATIONS.** The Department of Health also publishes numerous pamphlets of rules and regulations, methods of procedure, instructions and advice to the public on particular subjects, etc., which are not classified or listed.

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The Department will enter into exchange of publications with public health, medical and scientific organizations, societies, laboratories, journals and authors. Applications for publications should be addressed to the Secretary, Department of Health, corner of Centre and Walker Streets, New York City.

## MONOGRAPH SERIES

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- No. 1. The Registration and Sanitary Supervision of Pulmonary Tuberculosis in New York City. By John S. Billings, Jr., M.D., Chief of the Division of Communicable Diseases.
- No. 2. The Tuberculosis Clinics and Day Camps of the Department of Health. By John S. Billings, Jr., M.D., Chief of the Division of Communicable Diseases.
- No. 3. Typhoid Fever in New York City, Together With a Discussion of the Methods Found Serviceable in Studying Its Occurrence. By Charles F. Bolduan, M.D., Assistant to the General Medical Officer.
- No. 4. The Division of Child Hygiene of the Department of Health of The City of New York. By S. Josephine Baker, M.D., Director of Child Hygiene.
- No. 5. The Milk Supply of New York City and Its Control by the Department of Health. By Ernst J. Lederle, Ph.D., Commissioner of Health, and Russell Raynor, Chief of the Division of Food Inspection.
- No. 6. A Guide to Some of the Hygienic Features of New York City. By Charles F. Bolduan, M.D., Assistant to the General Medical Officer.